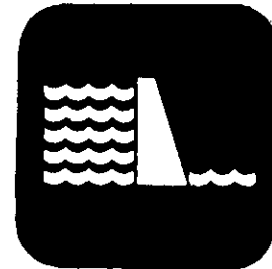
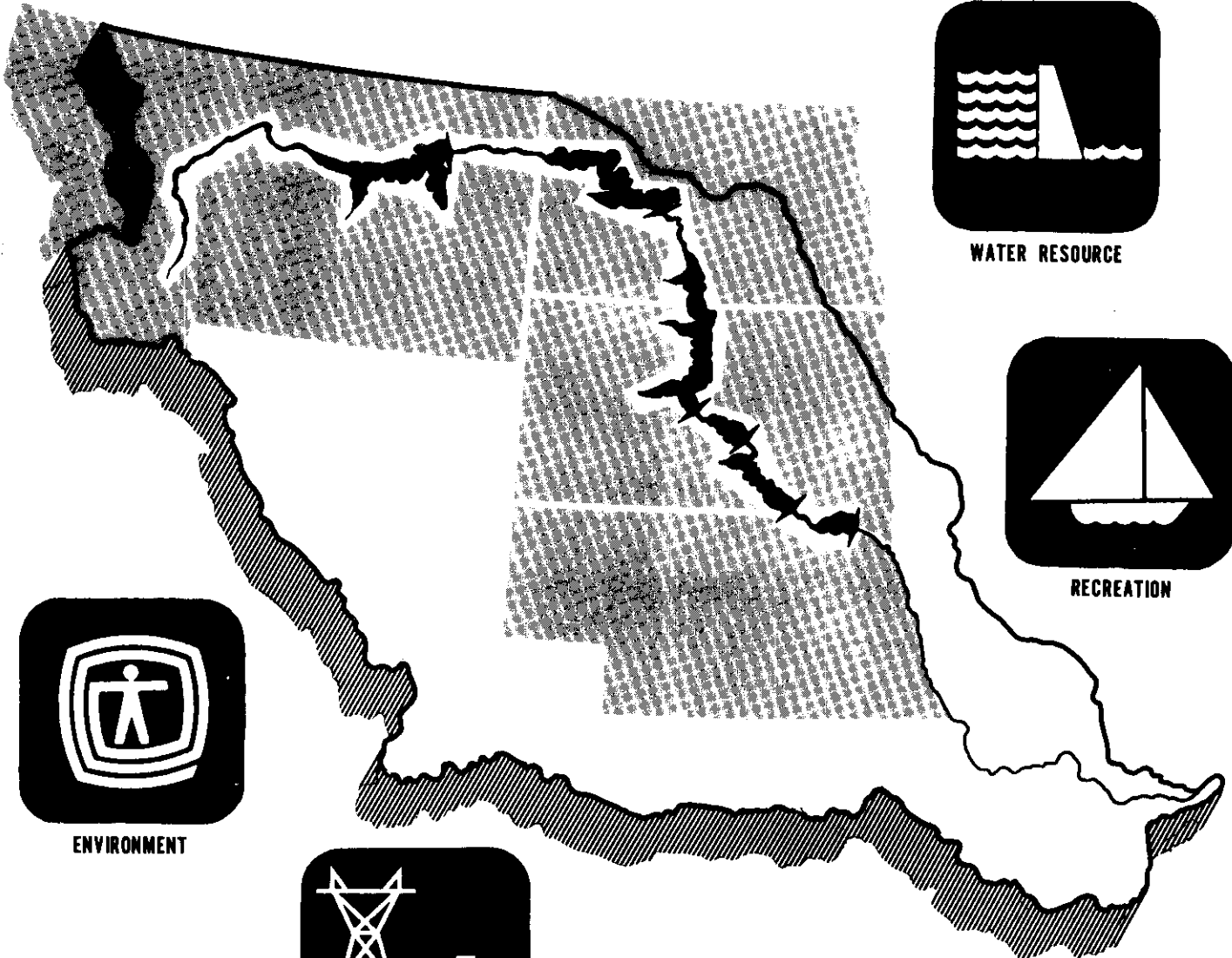


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MISSOURI RIVER

SOUTH DAKOTA, NEBRASKA, NORTH DAKOTA, MONTANA



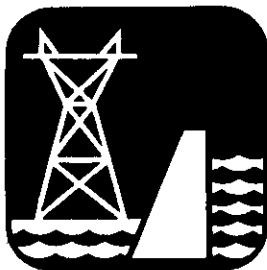
WATER RESOURCE



RECREATION



ENVIRONMENT



HYDRO-ELECTRIC POWER

REVIEW REPORT FOR WATER RESOURCES DEVELOPMENT

APPENDIX 2 — PERTINENT CORRESPONDENCE

APPENDIX 3 — REPORTS FROM OTHER AGENCIES

VOLUME 3 OF 3

AUGUST 1977

**REVIEW REPORT FOR
WATER RESOURCES DEVELOPMENT
MISSOURI RIVER
SOUTH DAKOTA, NEBRASKA, NORTH DAKOTA, MONTANA**

Pertinent Correspondence

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**PREPARED BY THE
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DEPARTMENT OF THE ARMY**

APPENDIX 2
PERTINENT CORRESPONDENCE

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IN REPLY REFER TO:

D6427

United States Department of the Interior
BUREAU OF OUTDOOR RECREATION
MID CONTINENT REGION

MAILING ADDRESS:

Post Office Box 25487
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:

603 Miller Court
Lakewood, Colorado
Telephone 234-2634

Brigadier General William E. Read
Division Engineer
Department of the Army
Missouri River Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

In response to your request of February 9, 1977, to review the draft Technical Report, Appendix I, the draft environmental statement and your proposed recommendations on the Missouri River, South Dakota, Nebraska, North Dakota, and Montana, and a similar request from the Department of the Interior's Office of Environmental Project Review to review the draft environmental statement for the Umbrella Study (ER-77/140), we offer the following comments. These comments are provided on a technical assistance basis only and do not constitute the official views of the Bureau of Outdoor Recreation or the Department of the Interior's position which will be provided during the formal review process.

Comments on Your Proposed Recommendations

1. Since the Wild and Scenic Rivers Act delegated major responsibility for system management to the Secretary of the Interior, we must insist that administration of this river reach be accomplished in consultation with the Secretary of the Interior, if designated under the above act.
2. We cannot support a project feature which would eliminate recreation on 35 miles of river below Garrison and recommend further study of alternatives.
3. We cannot agree to 130,000 feet of bank stabilization for the area being considered for national designation without a role in determining compatibility with wild and scenic river designation and provisions for such modifications as may be necessary to assure compatibility.

Appendix 2
1



General Comments - Technical Report, Appendix I, Missouri River,
South Dakota, Nebraska, North Dakota, Montana

Hydro-Power

The additional hydro-power unit proposed for Fort Peck Dam will have a significant effect on recreational activities from the dam to a location approximately 8 miles downstream. The "selected plan" for this proposal calls for the addition of a reregulation structure located approximately 8 miles downstream from the Fort Peck Dam. A total loss of all recreational activities will occur in this open reach of the Missouri River. This loss will be quite significant since this area presently supports heavy recreation use. It also appears that the loss of these existing recreation benefits have not been properly accounted for in calculating the economic feasibility of this project feature nor have the losses been reasonably mitigated.

Although mitigative measures for recreation are included in the report, they need to be strengthened. The report indicates that the recreation facilities now present below the dam will be moved to an area below the reregulation structure. There is no mention of when these facilities will be moved nor where they will be moved to. The report should include a map showing what facilities will be lost, where they will be replaced, and how much time will be required for the redevelopment to take place.

If this proposal is accepted, the recreation facilities that are proposed below the reregulation structure should be completed before work begins on the reregulation structure. This would avoid a total loss of recreation opportunities in the area below the dam while the reregulation structure is being built.

The proposed additional hydro-power units for Garrison Dam will have a major adverse effect on recreation opportunities from Garrison Dam to a location approximately 35 miles downstream. Fishing, a major recreation activity in this 35-mile segment, will be lost. Other water-related recreation activities in this area will be severely curtailed due to the water fluctuations. These recreation opportunities should either be replaced at project expense or the loss accounted for in the benefit/cost analysis.

Due to the significant loss of recreation opportunities and the adverse environmental impacts associated with the loss of approximately 35 miles of natural river, we object to the construction of this project feature as currently planned.

The Gregory County pumped-storage project located in Lake Francis Case, South Dakota, appears to be acceptable both environmentally and recreationally. Loss of land and effects on water-based recreation appear to be minimal.

We are in agreement that additional hydro-power units at Fort Randall Dam should be deferred. Any additional hydro units at this site could have a severe adverse effect on recreational opportunities.

Bank Stabilization

The selected plan provides for bank protection measures in the reaches downstream from Fort Peck, Garrison, Oahe, Fort Randall, and Gavins Point Dam in furtherance of congressional expressions in the 1974 and 1976 Water Resources Development Acts, Sections 32 and 161, respectively. The objective of the plan is to prevent loss of valley lands by protecting the high river banks, while leaving the river environment between the high banks in its present condition with no loss in water area.

Concerning the reach below Gavins Point Dam, the statement is made that only bank stabilization structures ". . . that demonstrate no or insignificant adverse aesthetic and biological effects will be used to protect the high bank lands in this river reach." We concur with this objective. However, this objective should not only relate to the reach below Gavins Point Dam but to all bank stabilization structures proposed for the entire Missouri River as called for in this report.

We are pleased to see that river access for recreation will be incorporated into the bank protection program. As noted in an earlier section, the State Comprehensive Outdoor Recreation Plans (SCORP's) of Nebraska and South Dakota have identified the need for additional recreation river access throughout the open reaches of the river. A vigorous attempt should be made to seek out non-Federal sponsors for these needed sites in accordance with Public Law 89-72, the Federal Water Project Recreation Act. Funding assistance for recreation enhancement can also be obtained by the State through the Land and Water Conservation Fund on a 50/50 matching basis.

On-Site Rearing Ponds

The selected plan calls for Federal construction together with neighboring forage base development of nine-acre on-site fish rearing ponds at seven locations on Lake Oahe and five on Lake Francis Case for northern pike propagation.

This plan appears to be acceptable both environmentally and recreationally. Care should be taken so that there are adequate recreational facilities to accommodate the anticipated numbers of people who will use the main-stem lakes if this program is as successful as anticipated. A paragraph should be included in this plan to show that the anticipated recreational

demands can be met with existing facilities. If these demands cannot be met, then additional developments should be included as part of this plan.

Reach Designation Under National Wild and Scenic Rivers Act

The selected plan proposes that the reach from Gavins Point Dam to Ponca State Park be designated as a component of the National Wild and Scenic Rivers System and be classified as a "recreational" river.

As noted in an earlier chapter of this study, the Bureau of Outdoor Recreation has aided the Corps of Engineers in developing this proposal. Inclusion of this segment in the National Wild and Scenic River System will preserve the free-flowing values of the river and provide future generations with an opportunity to enjoy the values associated with this remaining free-flowing segment of the Missouri River.

Included in the National River Designation proposal is the development of 130,000 linear feet of "soft" or aesthetically sensitive bank stabilization structures (23 percent of the present bank line) that will contain the river between the present high banks. We believe that the preservation afforded by bank stabilization structures that are compatible with designation under the Wild and Scenic Rivers Act provides the best overall solution to the problems and opportunities of this essentially natural and important reach of the river. Therefore, we are in agreement with this proposal. However, we recommend that construction of these stabilization structures be staged in such a manner that a determination can be made that the structures will in fact be compatible with wild and scenic river designation before the total stabilization program is completed.

Specific Comments

Page A-9, 4th line from top - Should read ". . . designation as a component of the National Wild and Scenic Rivers System (P.L. 90-542)."

Page C-28, paragraph 71 - Here the statements are made that "Reduction in lake surface at Fort Peck, Lake Sakakawea, Lake Oahe, and Lake Francis Case should have little overall effect on public recreation opportunities" and "there should be little overall loss of public use." We do not believe these statements accurately reflect the impacts at Lake Oahe, where the upper end of the lake would move approximately 50 miles below Bismarck, North Dakota, leaving General Sibley Park and the Hazelton and Fort Rice Public Use Areas at some distance from the reservoir. We also believe that more information should be provided on the feasibility of and needs associated with retaining the above recreation areas, developing replacement facilities on the shortened reservoir, and extending existing boat ramps and swimming beaches.

Page C-44, top line - All but the lower 17 miles . . . to end of paragraph should be deleted. It should read, "The segment from Fort Benton 149 miles downstream to Robinson Bridge, a segment known as the Missouri Breaks, has been designated as a component of the National Wild and Scenic Rivers System (P.L. 94-486). The Bureau of Land Management will be the principal managing agency."

Page C-80, paragraph 162 - The first sentence referencing Section 5(d) of the Wild and Scenic Rivers Act should be deleted since neither of the studies relate to Section 5(d). The upper reach was studied under Section 5(a), and the previous study of the reach below Gavins Point Dam was done under general investigations. Also, line 4 - Sentence should read, "As mentioned in paragraph 106, a reach in the upper end of the study area has been designated as a component of the National Wild and Scenic Rivers System. This reach, known as the Missouri Breaks, was designated by P.L. 94-486." In line 6, we suggest the wording be changed to "in an unpublished 1971 report"

Pages C-79 through C-164 - A paragraph should be added: The Nebraska Game and Parks Commission at their meeting of January 14, 1977, adopted a resolution which relates to the Missouri River from the Fort Randall Dam to the mouth of the Niobrara River. This resolution urges the inclusion of this reach of river in the study category, Section 5(a), of the Wild and Scenic Rivers Act for possible future designation as a scenic or recreation river.

Page D-22, paragraph 80 - We prefer use of the reworded and expanded version of the "No Federal Action" material submitted with our Technical Appendix contribution of January 9. We suggest substitution of all or part of this revised material.

SECTION D - FORMULATING A PLAN

NO FEDERAL ACTION (Revised)

80. Under six functional categories, this section has identified a number of possible solutions to problems and needs. In addition, there exists for each of the six the alternative - although in most cases it is not a solution - of no Federal action. This alternative assumes a continuation of current trends in the use and development (or loss and degradation) of resources, and that no new Federal actions will be taken as a result of this study.

A determination must be made for each resource category as to what conditions and measurable effects will result from a no Federal action situation. This makes it possible to establish a baseline from which to measure impacts of alternatives and of the recommended plan. The

results of no Federal action will vary: some activities, such as bank stabilization or national wild, scenic, or recreational river designation, appear to require direct Federal involvement or some form of joint Federal-State actions. Other activities, such as additional electrical generation, seem likely to occur with or without Federal initiative. No Federal action should not be equated with a continuation of present conditions for most resource categories. Lack of bank stabilization, for example, will not preserve the river in its present state. Rather, it will preserve a regime of continuing change; and while the river will remain attractive and natural-appearing in some respects, unique and valuable islands, sandbars, wooded areas, and farmlands will be lost.

Page D-54, paragraph 157 - Serious consideration should be given to better access into the Fort Peck area. Better access could increase recreation visitation substantially.

Page D-84, paragraph 196 - Recreational Development - Missouri River. Under this heading an additional alternative (alternative C) should be included. This alternative should identify the segment of the Missouri River, Gavins Point to Ponca State Park, as having the potential for designation, through legislative action, as a National Scenic Riverway or National River and Recreation Area. Although designation through this type of legislative action will not associate this segment of the Missouri with the National Wild and Scenic Rivers System, it still will preserve this free-flowing segment of the Missouri River for the benefit and enjoyment of present and future generations. An example of a National River and Recreation Area can be found in Public Law 93-251, Section 108, which designated the Big South Fork of the Cumberland River in Kentucky and Tennessee. An example of a National Scenic Riverway can be found in Public Law 88-492 which designated the Ozark National Scenic Riverways.

Page D-89, paragraph 197 - In line 6, "Department of Interior" should be "Department of the Interior." This correction should be made in several other places in the appendix. There is a problem with the rationale and completeness of the two sentences starting with "The Wild and Scenic Rivers Act . . ." on line 5. We suggest the following wording: The Wild and Scenic Rivers Act (P.L. 90-542) identifies the U.S. Department of the Interior and the U.S. Department of Agriculture as the Federal departments which will study rivers for their eligibility and proposed classification under this Act. The secretaries of the two departments have delegated the responsibilities for such river studies to the Bureau of Outdoor Recreation and the Forest Service respectively. As described earlier, the Bureau of Outdoor Recreation provided assistance in the study of the Gavins Point Dam to Ponca State Park reach of the river. Justification for presenting National Wild, Scenic, and Recreational River findings and recommendations in this report, then, is based on the Bureau of Outdoor Recreation's involvement and

the several congressional mandates that constitute the Corps' authorities for this "umbrella" study of the Missouri River. However, the river could only be recommended for designation under the Wild and Scenic Rivers Act if the reach were found to contain outstandingly remarkable natural and cultural values worthy of preservation under the terms of the Act. These values were found to be present, and the river is recommended for appropriate designation and management under the Recreational River classification. This course of action constitutes Plan A.

Page D-90, paragraph 199 - In line 3, "aesthetic" should be "natural."

Page D-91, paragraph 200 - In line 5, we suggest the wording be expanded to "such as islands and shoreline areas within the high banks"

Also a sentence should be added as follows, "These structures will be evaluated by a task force composed of representatives of the Corps of Engineers, Bureau of Outdoor Recreation, U.S. Fish and Wildlife Service, and the States of Nebraska and South Dakota."

Page E-11, paragraph 20, line 11-16 - The amount of prairie land to be affected by removal of field stone This amount should be documented in amount of acreage. Then a comparison should be given as to amount available vs. amount to be disturbed. The reader then can determine if this amount is or is not minimal.

Page E-15, paragraph 26 - In lines 9 and 10, we suggest that "demonstrate no or insignificant adverse aesthetic . . ." be changed to "that demonstrate aesthetic and biological effects that are compatible with National Wild and Scenic River designation will be used" In the last two lines on this page, we suggest changing the wording to "Therefore, any direct environmental effects of the high bank protection structure that are compatible with National River Designation are considered to be an acceptable trade-off for gaining protection of the riverine resources."

Page E-89 - Heading, "Senic," should be "Scenic."

Page E-92, paragraph 180, line 2 - "Elibility" should be "eligibility."

Page E-97, paragraph 190, line 10 - Delete "probably."

Page E-106, Table E-15 - Number missing to correspond with map. Also "Bishop Marty Rectory" is in Yankton County, not Clay County. The correct listing of National Register sites is as follows:

SOUTH DAKOTA

Clay County

1. Austin-Whittemore Museum
2. Old Main
3. Spirit Mound

Yankton County

4. Bishop Marty Rectory

NEBRASKA

Dixon County

5. Cook Blacksmith Shop

Cedar County

6. Wiseman Archeological Site
7. Schulte Archeological Site

Knox County

8. Episcopal Church
9. Congregational Church and Manse
10. Ponca Fort Site

Page E-109, paragraph 212, line 7 - "Clay County State Park" should read "Clay County State Recreation Area."

Page E-110, paragraph 213, line 9 - Same as above (E-109, paragraph 212).

Page E-111, paragraph 219, line 2 - Reference is made to "Appendix A," but it is not included. A copy of the appendix is attached and should be included.

Page E-123, first full paragraph - This paragraph should probably state that it is assumed the river corridor will average approximately one-quarter mile in width on each side of the river. (This is consonant with the Wild and Scenic Rivers Act.) Indications of corridor width and acreage are usually presented in wild and scenic river reports.

Page E-127, paragraph 257, line 5 - Instead of 90 percent, should read "with slightly more than 90 percent of the" The reason for this change is that 90 percent of 750,000 is 675,000.

Page E-132, paragraph 273 - The recreation easement information seems very precise. Usually, such information is not presented so precisely in order that landowners do not become prematurely or unnecessarily concerned and so that precise needs can be determined later, during the "management planning" period. We suggest the information here and on the maps at the end of the appendix be identified as tentative or approximate.

Page E-134, paragraph 278, line 5 - A more positive statement should be made concerning removal of the car bodies and rubble placed along the river banks. A suggested rewrite follows: "The Corps of Engineers will initiate action to remove all temporary bank stabilization structures including car bodies and rubble and establish erosion control measures that are compatible with National River Designation." The costs related to the removal of these temporary structures should be included in F-47.

Appendix 2

Page E-134, paragraph 280 - This paragraph should begin with the following: "Since the Wild and Scenic Rivers Act vested overall responsibility for the system to the Secretaries of the Interior and Agriculture and apparently did not envision management of Federal rivers by agencies except those in Interior and Agriculture, the Secretary of the Interior (in this case) will be kept involved. Therefore, this recommendation to Congress will include and provide for 'administration by the Secretary of the Army with the advice and counsel of the Secretary of the Interior.'"

Page E-135, paragraph 282 - First three lines should be deleted.

Page E-136, paragraph 286 - First line should read, "National Recreational River." Line three should read, "recreational river."

Draft Environmental Statement for Missouri River,
South Dakota, Nebraska, North Dakota, and Montana (ER-77/140)

General Comments

With the exception of a few minor items, the draft EIS has adequately addressed the environmental concerns of this Bureau.

Specific Comments

The project boundaries encompass Land and Water Conservation Fund projects, proposed and existing wild and scenic river segments, and potential national trails. Continued operation and maintenance should be carried out to protect and enhance these recreation resources. For your convenience, we are enclosing a list of State Liaison Officers. They can be contacted for exact location of projects.

The DES should recognize that a segment of the main stem Missouri River in Montana has been added to the National Wild and Scenic Rivers System. This was authorized by Public Law 94-846, 94th Congress, October 12, 1976. The segment from Fort Benton 149 miles downstream to Robinson Bridge, entitled "Missouri Breaks Freeflowing River Proposal," dated October 1975, is to be administered by the Secretary of the Interior.

Page iii, section 3.a. - The paragraph under the heading Environmental Impacts should be rewritten for clarity. Examples: First sentence - include losses associated with each segment of river; Fort Peck (26 acres), Garrison (60 acres), Oahe (2 acres), Fort Randall (24 acres), and Gavins Point Dam (160 acres). Second sentence - stabilization of the high riverbanks along the valley lands will reduce risks to dwellings, outbuildings, and lands under cultivation.

Page vi, paragraph 3, Designation and Development of Recreational River - This paragraph should include an additional alternative (Alternative C) concerning the potential for designation, through legislative action, as a national scenic riverway or national river and recreation area.

Page V, section b, paragraph 1, Bank Protection - Instead of saying, "Conversion of some river fringe woodland to cultivate crops . . .," the approximately acreage should be identified.

Page I-29, paragraph 1.56 - The first sentence is awkward and should be rewritten. Line 10 - Delete "near pristine."

Page IV, Beneficial Effects of National Recreation River - A sentence should be added, most likely in 4.15, noting the removal of junk car bodies and rubble associated with temporary bank stabilization measures.

Page V-1 through V-3, Probable Adverse Environmental Effects Which Cannot Be Avoided - Throughout this section there is a need to quantify elements of the environmental effects, i.e., approximate amount of woodland that will be converted to cultivation, acreage that will be required for rock harvesting and quarries, size of the embayment that will be destroyed by the Gregory County project, etc.

Page VI-12, paragraph 6.40 - A sentence should be added, "Although Alternative C (National Scenic Riverway or National River and Recreation Area) would also protect the river and its environment, Plan A was chosen since this segment of the Missouri River was found to qualify as a component of the National Wild and Scenic Rivers System."

We appreciate the opportunity to review and comment on these draft documents. We trust these comments will assist you in finalizing the subject documents. If we can be of additional assistance, please feel free to call upon us.

Sincerely,



for Derrell P. Thompson
Regional Director

Enclosure

cc: National Park Service, Omaha
Fish and Wildlife Service, Denver
State Liaison Officers, South
Dakota and Nebraska
Paul Harley, Missouri Basin Commission

Appendix 2



United States Department of the Interior

BUREAU OF RECLAMATION

Upper Missouri Region

P.O. Box 2553

Billings, Montana 59103

IN REPLY
REFER TO: 415/160

MAR 28 1977

Brig. Gen. William E. Read
Division Engineer
Attention: MRDED-TM
Missouri River Division
Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

We appreciate the opportunity to provide comments on the draft report, Upper Missouri River Umbrella Study, and the accompanying draft environmental impact statement. The Bureau of Reclamation testified in favor of the proposed hydropeaking additions at Fort Peck and Garrison as well as construction of the Gregory County pumped storage facilities at the recently held public meetings. The demand for hydropeaking resources in our marketing area is expected to increase as the availability of nonreplaceable oil and gas resources for generation purposes continues to decline. Our preference customers as well as area investor-owned utilities have indicated considerable interest in the schedule and allocation of the additional peaking power. Many have expressed disappointment with the completion schedules shown in your report. We share this concern and recommend serious consideration be given to accelerating the design and construction schedule with the earliest possible in-service date.

Although we have made no specific inquiries for pump-back energy for the Gregory County pumped storage project, we are not anticipating any difficulty in arranging for the necessary energy to meet the normal pumping cycle indicated in your report. The MARCA area has adequate fossil or nuclear base load units to provide economic pumping capacity without depending on higher cost generation. Addition of the off-peak pumping load should in fact help alleviate system operating problems during light load periods caused by the inability to cycle large thermal units. Peaking generation also provides the means to shift peaking energy away from more costly nonreplaceable fuels.

Preliminary transmission studies have been conducted in order to tentatively identify transmission requirements associated with the

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new generation additions. The several corridors mentioned in the report under transmission facilities still seem applicable. In all probability, not all these lines would be constructed. We intend to work very closely with other area utilities in defining the final additions and promote joint construction wherever possible to reduce costs and environmental impacts. For your information, we have enclosed separate comments which generally address the various expected environmental impacts associated with 345-kv steel tower transmission lines, and some mitigating measures used by the Bureau of Reclamation for transmission line construction. The impacts are very general and would apply to most steel tower lines. Additional impacts applicable for each corridor would also apply. Right-of-way requirements for 230-kv steel tower lines would be about 20 percent less than that for a 345-kv line. Other than right-of-way requirements, impacts for 230-kv lines would be about the same as those described for 345-kv lines. You may wish to incorporate these comments into your draft environmental statement. Once we have finalized the transmission additions, individual impact statements will be prepared for each specific line in compliance with Federal regulations.

We expect opportunities for joint participation in transmission facilities to present themselves prior to the anticipated generation completion schedules. Whenever possible, it would be to the benefit of the Federal Government to participate in plans consistent with our requirements. Such an opportunity may be the construction of a single EHV line with capacity for the additional Federal generation in lieu of later construction of multiple lower voltage lines. To allow us this planning flexibility, we recommend the Corps request for authorization include funding for the associated transmission.

Based on the expected investment and favorable marketing conditions, we anticipate no difficulty in meeting the required 50-year repayment criteria. Once the exact construction schedule and marketing plan are finalized, detailed power repayment studies can be conducted to determine the required power rates.

Specific Comments on the Draft Impact Statement:

Summary - Hydropower - Garrison - The 190 acres of woodland habitat lost would be a permanent loss. Although it would only occur once, the term "one-time loss" could be misleading.

- Alternatives - A summary of the reasons for not discussing the "no action" alternative (paragraphs 1.20 and 6.13) should be included.

Page 1-7 - It would be helpful if the overall plan for bank erosion protection included an indication of the relative magnitude of the project; e.g., a table giving length of riverbank protection vs. total riverbank per reach.

Appendix 2

Page I-15 - A figure showing the proposed reregulating dam and reservoir, Scout and Duck Islands, and other features such as wildlife habitat that would be lost would help clarify the Fort Peck proposal.

Page I-21 - paragraph 1.38 - Purchase of 285 acres of existing woodland will only result in transfer of the land to public ownership. It does nothing to create new habitat to replace the 190 acres lost. This also applies to paragraph 1.31.

Page II-1 - paragraph 2.01 - Line 10 beginning with "which is eastern Montana . . ." should be changed to read ". . ., in eastern Montana, North Dakota, South Dakota, Nebraska, western Minnesota, and western Iowa."

Page II-10 - paragraph 2.24 - The State of North Dakota considers the blue sucker as endangered while the pallid sturgeon, blackchin shiner, flathead catfish, and trout-perch are considered rare. The blue sucker and flathead catfish reportedly occur in Lake Sakakawea. In addition, the pallid sturgeon has been recommended for inclusion in the Federal Endangered Species List. (See Umbrella Study, page B-63)

Page IV-2 - In addition to the impacts listed, it appears that 108 acres of land will be flooded to make the rearing ponds and additional acreage would be disturbed to provide space for equipment (i.e., hatchery trailers).

Page IV-5 - paragraph 4.03 - This paragraph appears to be contradictory. Here and in other places (i.e., page IV-1), it is stated that major or principal sources of sediment would be eliminated and turbidity reduced. Here, however, it is stated that the turbidity change would be insignificant. "Insignificant" would seem to contradict "major" and "principal."

Page IV-6 - paragraph 4.07 - With a good cold water fishery established below the dam, we question the beneficial aspect of encouraging additional warm water species at the expense, it seems, of the cold water species. In addition, how can this paragraph be resolved with paragraph 4.28 which states that there will be a reduction in fish populations?

Page IV-8 - paragraph 4.18 - Any losses of existing woodland would have a major impact on wildlife.

Page IV-8 - paragraph 4.19 - Since the Missouri Breaks timber is valuable to the wildlife that depend on it, it appears contradictory to conclude that harvesting of rock, with related disturbance to ground cover, is not to be considered significant.

Page IV-17 - paragraph 4.43 - This paragraph is unclear regarding the presence of prairie dog towns on the site. If they are present as indicated, the statement that there would be no effect on black-footed ferret requires further explanation.

Page IV-23 - paragraph 4.65 - Considering the approximately 7,400 circuit miles of Federal Transmission in the Upper Missouri Region, we question whether "substantial" additions will be required in comparison to the 80-percent increase in generating capacity.

Page IV-23 - The proposed transmission corridors listed should also include outlet lines from the Augary County site to Fort Randall.

The following comments are on the draft "Umbrella" study:

Page C-16 - paragraph 44 - The reduction by 2 MAF in ultimate irrigation depletion is probably nested in the economics of development as well as lack of supply.

Page C-17 - paragraph 45 - The last line implies difficulty in justification of Federal irrigation due primarily to WRC guidelines. Undoubtedly other problems like interest rates, farm prices, etc., should be noted.

Page C-26 - paragraph 65 - The percentage reduction in flow may be somewhat misleading. The actual depletion may be more meaningful.

Page C-30 - paragraph 76 - The SRF projections for 2000 is 14.7 MAF according to our data.

Page C-40 - paragraph 97 - The paragraph deals with marketing policies. It should be noted that industrial water is the topic. The MOU "and extension" should be noted, with a date of May 1, 1977. The issue of "acceptability to all concerned" of selling storage space or water should be included. "Ability and willingness to pay" should be added.

Page C-45 - paragraph 113 - line 5 - Change proposed to potential. Line 9 add "and distributed by canals and laterals" after "released." Line 13 replace "not firm" with "the early 1980's." Line 16 replace "three-fourths" with "most." Line 17 should read "maximum diversion, at ultimate stage development, is expected to average 2.6 million acre-feet per year."

Page C-46 - paragraph 115 - line 7 - The value should be 444,400 AF. Line 8 should read "ultimate stage development plans for irrigation . . ."

Page C-47 - paragraph 118 - line 9 - In addition to Helena Valley (20,000 AC) service is also provided to East Bench and Crow Creek by exchange.

Appendix 2

Page D-98 - paragraph 208 - line 6 - Notes the existence of "a well documented information base" is noted. This position would seem extremely strong in view of the comparison of presently irrigated acres, present depletions, and future projected depletions as expressed in the framework study, the WRC State Regional Futures, the MRBC's Modified Central Case, and the USBR Rate and Repayment studies.

Page E-30 - Suggest the word "potential" before oil-fired and include the words "and other types of" after oil-fired.

Page E-123 - penultimate paragraph - Add "below Canyon Ferry Reservoir" after impoundments.



Robert D. McPhail

Enclosure

cc: Director, Office of Environmental Project Review, Office of the
Secretary, Department of the Interior, Washington, D.C. 20240
Commissioner, Attention: 150 (610 via faxogram)
(w/cy. of encl. to ea.)

Transmission Line Impacts

Construction Activities

Field construction of each line would require about 2 years for completion of the line. During the 2-year period there would be construction activity somewhere along the alignment, within the right-of-way.

The first activities would be to install gates on existing fences crossed by the line, and remove trees and bushes that would interfere with the transmission line. Preconstruction survey crews then follow, preceding by 2 to 3 days crews excavating tower footings. Crews excavating tower footings can complete about 10 sites per day. After excavation, concrete for the tower footings is placed at the rate of 10 towers per day until around December 1 when winter halts concrete operations. Footings for about 95 miles of line can be completed the first season.

In the fall, prior to winter shutdown on concrete operations, steel for the structures would begin to arrive and would be hauled to the tower sites.

Ground assembly of the towers would begin when cold weather stops concrete placing. As many as 7 crews would be used to assemble about 35 towers per week. Following tower assembly, erection crews would set the towers on the footings at the same rate. Ground assembly and erection would continue through the winter until resumption of concrete operations in the spring. About 60 to 70 miles of towers would be assembled and erected during the winter. Tower ground assembly and erection would continue in the spring, and the concrete operations would be resumed.

Conductor stringing would start in the spring. The stringing operation consists of four phases, stringing conductors and overhead ground wires, sagging, clipping in (permanent tie to insulators), and cleanup.

Tension stringing methods would be utilized to install the conductors and overhead ground wires. One or two trucks drive down the line and lay out pulling lines (ropes) which are placed in pulleys mounted on the towers. In turn, pulling cables (steel) are pulled through the pulleys. The pulling cables are used to pull the conductors under tension. Heavy equipment need not move from tower to tower. As many as 17 to 18 pieces of construction equipment would be located at each end of the stringing operation. From 10,000 to 15,000 feet of conductor would be installed on each pull. Stringing crews would complete about 7 miles of line per week. For steel structure 345-kv transmission lines, approximately 4,660 tons of steel would be used in construction of 100 miles of transmission line along with 2,090 tons of conductor, 295 tons of overhead ground wire, and 6,160 cubic yards of concrete.

Environmental Impacts Associated with Steel Tower 345-kv Transmission Lines

1. Land Use Changes

An area of about 1,980 acres would be required for right-of-way for 100 miles of 345-kv transmission line. About 22 acres of farm and rangeland would be taken out of agricultural production for structures for each 100 miles of transmission line. An area of 10 to 15 acres would also be required for terminal facilities at each end of the line. Existing uses are expected to continue in the line right-of-way except for the area taken up by the structures themselves. Structures constructed in cultivated areas would be provided with minimum leg extensions of 15 feet so that land under the structures could be cultivated and utilized as farm land.

2. Disturbances to the Landscape

Disturbances to the landscape would occur during construction of the transmission line. During construction, right-of-way clearing, construction sites, access roads, and scars, such as tire tracks, account for the major impacts to the landscape because of the disturbance to trees, ground cover, the potential for erosion and modification to the farm land. During the field construction period, there would be intermittent vehicle travel somewhere along the alignment. This travel would be restricted to a path within the right-of-way for almost the entire length of line. The major construction activities are excavation and placing concrete for footings, ground assembly and erection of steel structures, and stringing conductors. At times this construction activity could be spread out over a 10- to 12-mile area. Construction activities for each phase, footings, steel or stringing in a particular area could be complete in about 2 weeks' time.

3. Visual Effects

The transmission line and structures would be introduced to a farm landscape and would be visible for about 4 miles from each highway crossing. The line would also be visible from some possible recreation areas in the vicinity of the line. It would not be feasible to shield the towers from view of travelers on the various highways crossed by the line.

Addition of transmission lines will increase the visual impact of multiple transmission lines near line terminal substations. There will also be an increased visual impact at the line terminals as a result of expansion of existing substations for 345-kv yards or development of new substations where required.

4. Effects on Vegetation

Some clearing of trees and brush will be required within the transmission line right-of-way. The normal method of clearing is manual removal with a saw or chainsaw. Where necessary for vehicle travel, a 15-foot-wide strip is cleared. Trees are trimmed to provide a tree-to-conductor electrical clearance of 12 feet under maximum conductor sag conditions and to allow for conductor side swing under wind conditions. Under initial sag conditions and a 30° F. ambient temperature, the conductor-to-tree clearance would be about 25 feet plus an allowance for 10 years of tree growth. The height indicated applies to trees within a 57½-foot distance on each side of transmission line centerline.

Trees and branches will be chipped, burned in accordance with state regulations, or made available to the landowner for firewood. Trees or shrubs which do not interfere with powerline maintenance would not be removed. Very little blow down or parching of sheltered crops as a result of tree removal from shelterbelts is expected.

5. Effects on Wildlife

Construction of transmission facilities will have some impacts on animals. These impacts will occur primarily through the disturbance of animals by construction activities and elimination of habitat, such as areas occupied by tower space.

There would be some loss of bird life as a result of collision with the structures or conductors along the line. The extent of losses cannot be predicted but we believe they would be slight.

Loss of cover and nesting habitat resulting from tree and brush removal for the line would result in a proportional decline in small mammal and bird populations. The loss from these particular projects is expected to be small in comparison with the total amount of such habitat available in the immediate vicinity of the projects, but cumulative losses are significant. The Bureau of Reclamation has 7,400 miles of transmission line in the Upper Missouri Region. Right-of-way width varies from 75 feet for 115-kv lines to 175 feet for 345-kv lines. No data are available on the area considered wildlife habitat for the other lines. Also the type of wildlife habitat would vary for each line.

Conductors for 345-kv lines would be about 28.5 feet apart which would preclude electrocution of large raptors.

Mitigating Measures and Air and Water Quality Aspects

No effect related to air and water quality standards is anticipated. Federal, State, and local air and water pollution law requirements would be met during construction and operation and maintenance.

Appendix 2

At some locations, clearing of shelterbelts or clumps of trees can be reduced or eliminated entirely. These sites have structures close enough to the trees so that installation of higher structures at these locations will permit the line to go over the trees and eliminate clearing or reduce the clearing to topping or trimming only.

Tension stringing methods utilized to install the conductors and overhead ground wires reduce the impact of line construction since heavy equipment does not have to move from structure to structure along the entire length of right-of-way. Stringing equipment would be set up at 2- to 3-mile intervals. This stringing technique also allows trees to be trimmed instead of removed and underbrush left undisturbed. The Bureau does not replace trees cut or removed, but the landowner is compensated for damages. Compensation payments can be used by the landowner to replace trees when and where he desires.

The proposed transmission lines would be placed at midsection where possible as this location would provide the least amount of disturbance to farming operations.

All towers are grounded at each leg. To prevent electrification of fence lines, wood-post fences parallel to and within 100 feet of the centerline are grounded at one-eighth-mile intervals and fences with steel posts are grounded at one-fourth-mile intervals. One grounding post is used at each side of the right-of-way for fences crossing under the line.

Construction specifications require that the contractor exercise care in preserving the natural landscape and conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings. All work areas would be smoothed and graded to conform to the natural appearance of the landscape. Construction specifications require that unnecessary destruction, damage or defacing as a result of the contractor's operations be repaired, replanted, reseeded or otherwise corrected at the contractor's expense. Very little erosion resulting from the effects of construction is expected.

Contractors are required to comply with all applicable laws and regulations, concerning control of pollution of streams, reservoirs, ground water, or water courses with respect to discharge of refuse, garbage, sewage effluent, industrial waste, mineral salts, or other pollutants.

Contractors would be required to comply with all applicable laws and regulations concerning prevention and control of air pollution. In construction activities and operation of equipment, contractors must use such practicable methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants. The contractors would carry out whatever measures are necessary to reduce dust and to prevent dust

from their operations from damaging crops, orchards, cultivated fields, and dwellings, or causing a nuisance.

Burning of slash would be permitted only when conditions are considered favorable for burning and at locations approved by proper state or local authorities. All burning would be so thorough that the materials are reduced to ashes. In lieu of burning, combustible material may be reduced to chips of $\frac{1}{2}$ -inch-maximum thickness, distributed uniformly on the ground surface within the right-of-way and mixed with the underlying earth so that they would not support combustion.

Areas disturbed during construction will be revegetated consistent with present land use. Most land required for the right-of-way easements could be farmed or pastured after construction of the transmission line and terminal facilities. Design, location, clearing, and construction of the transmission line would follow the guidelines in the Federal Government publications of Environmental Criteria for Electric Transmission Systems, Environmental Guidebook for Construction, and the National Electric Safety Code. Where river or highway crossings occur, structures would be spaced with long spans and set back from the river or highway as far as practicable.

The alignment through farms will be as far away from buildings as reasonable to minimize interference with the farmstead as well as radio and television interference. Sufficient physical separation from dwellings would be provided so that there would be little, if any, adverse effects on radio or television reception. The conductor size would also be large enough to minimize interference with radio or television reception.



United States Department of the Interior

BUREAU OF RECLAMATION

Upper Missouri Region

P.O. Box 2553

Billings, Montana 59103

IN REPLY
REFER TO: 620
125.1

MAR 30 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Corps of Engineers
Missouri River Division
Attention: MRDPD-ER
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

In reference to your March 24, 1977, letter requesting our assistance in developing a response to item 1 of Basin's March 21 inquiry, we offer the following comments:

"The transmission corridors listed in our draft environmental statement were identified from preliminary transmission studies investigating bulk transmission requirements to deliver the additional hydropeaking capacity for on-peak conditions. Considering the proposed operating plan for the additional capacity, the preliminary transmission study assumptions still appear valid. Final transmission studies to define actual system additions will include both power flow and stability analysis. Bureau of Reclamation power system planning engineers are very cognizant of stability considerations in the North Dakota area and intend to thoroughly investigate this aspect in order to assure system integrity is maintained. The final transmission plan will meet MARCA reliability standards as prescribed by the MARCA Design Review Committee. The final plan will also be presented to that committee for their review and approval."

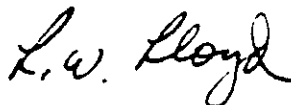


Appendix 2

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We hope the above statement is satisfactory. Additional comments, including a general discussion of expected environmental impacts associated with transmission construction, were furnished with our March 28, 1977, letter. If we can be of further assistance, please advise.

Sincerely yours,

A handwritten signature in cursive script, reading "L. W. Lloyd".

ASSISTANT Regional Director



United States Department of the Interior

NATIONAL PARK SERVICE

MIDWEST REGION

1709 JACKSON STREET

OMAHA, NEBRASKA 68102

IN REPLY REFER TO:

L7619 MWR PE

Mr. Gus J. Karabatsos
Chief, Planning Division
Missouri River Division, Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

In accordance with a memorandum from the Director, Office of Environmental Project Review, Department of the Interior, appropriate personnel of the field and central offices of the Rocky Mountain and Midwest Regions of the National Park Service have reviewed your draft statement for the Missouri River, South Dakota, Nebraska, North Dakota, and Montana. The comments which follow do not constitute official review by the Department of the Interior.

Page IV-21, paragraph 4.57: It appears to us that there could be effects on the cultural resources further downstream from the approximately 40-mile reach below the 8-mile regulation Fort Peck Dam site. Both Fort Union Trading Post National Historic Site and Fort Buford State Historical Site, which are located near the confluence of the Yellowstone and Missouri Rivers, are in close proximity to the current river channel. It is essential, in maintaining the historic integrity of these sites, that the Fort Peck reregulation water discharge will not raise above the 1870-foot water elevation at the location of the Fort sites.

We are also quite concerned about the effect to the historic and cultural resources located downstream from the Garrison Dam as discussed on page IV-22, paragraph 4.61. Even though the draft environmental statement identifies the Knife River Indian Villages as a cultural resource, it doesn't positively promise protection to the site, but rather it promises to recover and preserve the cultural resources.

In this connection, we enclose a copy of review comments prepared for the draft environmental statement for Missouri

Appendix 2

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River Main Stem System, Montana, North Dakota, South Dakota, Nebraska, and Iowa (ER-77/90). You will find therein a detailed statement of serious questions about the effects that the proposed actions may have on the Knife River Indian Villages National Historic Site.

Page II-15, Section 2.41 of the draft environmental statement, establishes that the State Historic Preservation Officers in the states affected have been contacted. The final environmental statement should include copies of their letters of comment concerning project developments. There is a need to establish whether the indicated actions will affect any cultural resource site which may be in the process of nomination to the National Register of Historic Places.

Page I-29, Section 1.56, indicates that approximately 60 miles of the Missouri River from Gavins Point Dam to Ponca State Park is proposed for designation as a Recreation River under provisions of the National Wild and Scenic Rivers Act (Public Law 90-542). As such a designated river, the area involved would be subject to increased public utilization. Unknown cultural resources may be damaged or destroyed as a result of greater public access to the area. Therefore, we recommend that necessary mitigation be undertaken to assure protection and enhancement of affected cultural resources.

In the section on "Wild and Scenic Rivers Act Designation" on pages I-29 and I-30, it is unclear how the 60-mile reach of the river will be designated and classified under the provisions of Public Law 90-542. We recommend that this discussion, particularly paragraphs 1.56 and 1.58, be quantified accordingly in the final environmental statement.

The final environmental statement should clarify whether the 750,000 figure stated in Chapter IV, paragraph 4.13, is estimated to be the annual or cumulative visitation by 1990.

The reach of the river to be proposed for National Recreation River classification under P.L. 90-542 is relatively undeveloped

from a public use and access standpoint. Even with the Federal developments proposed, it would seem that the 750,000 visitation has potential for significant, if not imposing, impacts upon existing state and local recreational facilities, such as the Clay County Recreation Area in South Dakota and Ponca State Park in Nebraska. Ponca State Park, for example, provides the nearest motor vehicular access by Federal and state highway from the Sioux City, Iowa, population center.

We recommend that the final statement address the probable impacts on the state and local recreation areas and their managing agencies of the increased visitor use generated by National Recreational River designation.

The final environmental statement should also include specific guidelines for immediate work stoppage, notification of the appropriate State Historic Preservation Officer, evaluation by a professional archeologist, and excavation, if warranted, in the event unknown cultural resource sites are located during any given construction activity.

Apart from Paleo-Indian, Archaic and late prehistoric sites which may exist along the Missouri River reaches, other historic sites of more recent date do exist. These should be identified, evaluated and the potential impacts upon them determined, and the Advisory Council on Historic Preservation "Procedures for the Protection of Historic and Cultural Properties" (36 CFR, Part 800) applied as appropriate.

We appreciate the opportunity to review the draft environmental statement.

Sincerely yours,



Merrill D. Beal
Regional Director

Enclosure



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

ABERDEEN AREA OFFICE
115 FOURTH AVENUE S.E.
ABERDEEN, SOUTH DAKOTA 57401

IN REPLY REFER TO:

Environmental
Quality

MAR 23 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
U. S. Corps of Engineers
Missouri River Division
Omaha, Nebraska 68101

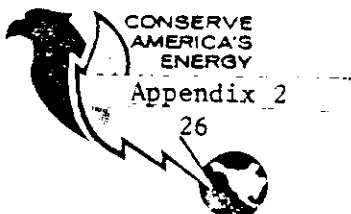
Dear Mr. Karabatsos:

The Chief, Division of Trust Facilitation for the Bureau of Indian Affairs by memorandum dated February 15, 1977 has requested this office to prepare the Bureau's comments on the Draft Statement Missouri River, Nebraska, South Dakota, North Dakota and Montana (ER-77/140). These comments reflect a review conducted by the Bureau's Billings Area Office also.

1. Our primary concern lies with the minimum flow release figures from the proposed regulating structure at Fort Peck. Page 1-15, paragraph 1.27, states that the minimum discharge for the 41 hour period will be 6,000 cfs. This discharge is 1,000 cfs below our required minimum flow for irrigation.

The Fort Peck Irrigation Project has two pumping units on the Missouri River. Those pumping units constitute the main water supply for the irrigation project. The Frazer-Wolf Point Pumping Unit is located about twelve miles downstream from the Fort Peck Dam. This pumping unit supplies water to the Frazer-Wolf Point and Porcupine Units, containing 16,655 acres. The pumping unit operates on a seven day week, 24 hour per day schedule, throughout most of the irrigation season (approximately April 15 to September 15).

With existing channel conditions, the required minimum channel flow of 7,000 cfs is needed to operate the pumping plants. Present conditions at the pumping station are such that a sand bar is forming directly in front of the pump station intakes, and the river channel is moving away due to normal streambed erosion. To insure that adequate water will be available to the pumping station will require a higher flow than the 6,000 cfs discussed in the statement.



Save Energy and You Serve America!

2. Appendix 1, plates E-3 and E-4, depict plans for bank protection at selected downstream locations. The plan depicted in plate E-3 will serve to prevent bank erosion and will favor the operation of a pumping plant approximately one river mile downstream. Plate E-4 shows a proposed bank protection plan that may prevent the cutting off of a oxbow in the river. If such preventive action is not taken the city of Poplar, Montana, would likely be removed a substantial distance from the river.

3. In paragraph 1.47 there is contemplated several nine-acre fish rearing ponds, some are located on the Yankton Indian Reservation and one on Cheyenne River Reservation. We have not received comments from either of the Tribes or Agencies at these locations. However, site selection will have to be cleared with each Tribe. As noted in 1.51 there is probably a chance of some part-time employment for Indian people at these sites.

4. The last sentence in 2.39 anticipates minor effects to cultural resources, we suggest a cultural survey of the affected Indian reservations be conducted. Paragraph 4.61 indicates several known cultural resource areas between Garrison and Lake Oahe.

5. The discussion Cultural Resource Setting, page II-14, is the only place Indians are directly referred to. Paragraph 2.37 should be rewritten to show Indians as not being replaced but rather relocated to established reservations.

6. In Section IV a discussion should be included regarding the cultural, social and economic impacts that would be anticipated on those reservations that border the Missouri and in the case of Fort Berthold where the river successfully divides the reservation into five separate areas.

7. Water depletions from the Missouri River mainstem will be realized, although comparatively small, the loss will be created by infiltration and/or evaporation from the reregulation reservoirs, the Gregory County forebay, and fish rearing ponds.

In summary, as previously stated, these comments do not reflect tribal input at this time. As their comments are received they will be consolidated and sent to you. In many cases it has been noted several Tribes reply directly to the proposing agency without sending us a copy.

As this project develops please feel free to contact us if a problem is encountered. The Bureau is pleased to furnish these comments for the final impact statement, and appreciate the opportunity to review the draft environmental statement.

Sincerely yours,


Area Director

FEDERAL POWER COMMISSION
REGIONAL OFFICE
31st Floor, Federal Building
230 South Dearborn Street
Chicago, Illinois 60604

March 17, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
U. S. Army Engineers, Missouri River Division
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

This is in reply to your February 7, 1977 request for comments on the Draft Environmental Impact Statement, Missouri River, South Dakota, Nebraska, North Dakota, and Montana.

The proposed action would involve among other measures: (1) Additions to the hydroelectric power plants at Fort Peck, Montana, and Garrison, North Dakota, and construction of a pumped-storage plant adjacent to Lake Francis Case in Gregory County, South Dakota. (2) Bank protection at selected locations in open river reaches between Fort Peck, Montana, and Ponca State Park, Nebraska, together with recreation access at several locations. (3) Designation of the Missouri River between Gavins Point Dam and Ponca State Park, Nebraska, as a Recreational River under provisions of the National Wild and Scenic Rivers Act. (4) Construction and operation of on-site northern pike fish rearing ponds adjacent to Lakes Oahe and Francis Case, South Dakota, to enhance the fishery in those lakes.

The following comments, which are of this office and therefore do not necessarily represent the views of the Federal Power Commission, are made in accordance with the National Environmental Act of 1969 and the August 1, 1973 Guidelines of the Council on Environmental Quality. Our principal concern with the proposed plan relates to possible effects of such developments on bulk electric power facilities including potential hydroelectric power development and on natural gas pipeline facilities.

The Montana Power Company has seven developments of Project No. 2188 that are licensed by the Federal Power Commission which are located on the Missouri River in the portion of the study area from the Great Falls, Montana area upstream. It does not appear that the actions proposed in the draft EIS will have any affect on these developments.

Appendix 2
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The Nebraska Public Power District was issued an FPC preliminary permit on March 10, 1975 for the purpose of investigating and developing material in perfecting an application for licensing a proposed pumped-storage development in Boyd County, Nebraska.

This proposed 1000 MW plant is located along the Nebraska shoreline of the Missouri River about 13 miles southeast of Fort Randall dam. This project would utilize an upper reservoir to be constructed on nearby bluffs and a lower reservoir to be constructed on flood plain land near the Missouri River.

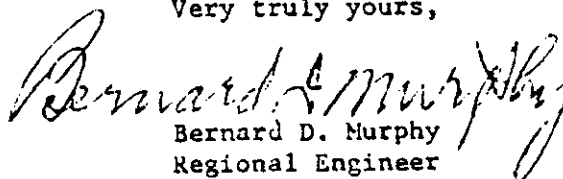
The proposed development of hydroelectric generating facilities in the DEIS may have an affect on this project. The increased regional tourism expected due to the trophy northern pike fishing proposed for Francis Case Lake and the designation of the stretch of the Missouri River as a recreation river may alter the recreation use patterns expected at the recreation sites being planned at the proposed Boyd County pumped-storage project.

In reference to the designation of the specified reach as a Recreational River, there may be a potential hydroelectric capacity of 160 MW and associated generation of 700,000 MWh within the reach of the Missouri River between Yankton, South Dakota and Sioux City, Iowa. Although economic and other factors may preclude the development of this potential, it should be noted that a large portion of the power would be foregone if the proposed reach is included in the Wild and Scenic River system.

As noted in your report, the Chicago Regional Office of the Federal Power Commission has confirmed the need for additional generating capacity and has identified the most probable non-Federal method of supplying that generation, together with the value of its energy and capacity components.

Thank you for the opportunity to comment on the Draft Environmental Impact Statement.

Very truly yours,


Bernard D. Murphy
Regional Engineer

cc: Brig. Gen. William E. Read
District Engineer

Appendix 2



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
UNIVAC BUILDING, 7100 WEST CENTER ROAD
OMAHA, NEBRASKA 68106

REGION VII
Room 300 Federal Office Building
911 Walnut Street
Kansas City, Missouri 64106

March 21, 1977

IN REPLY REFER TO:

7.255

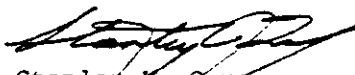
Mr. Gus J. Karabatsos
Chief, Planning Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

I have received the Draft Environmental Statement for the Missouri River Operations, and have found the document to be satisfactory in meeting the spirit and intent of the National Environmental Policy Act of 1969, with one exception.

The Statement does not discuss the impact of this action on the flood plain designations and associated land use implications, pursuant to the provisions of the Flood Disaster Protection Act of 1973. Any changes to these designations will have a considerable impact to some communities in Iowa and Nebraska, in particular Council Bluffs, Iowa, and Sioux City, Iowa.

Sincerely,


Stanley V. Guy
Environmental Officer



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION VIII
FEDERAL OFFICE BUILDING
1911 AND STOUT STREETS
DENVER, COLORADO 80202

80294

March 23, 1977

OFFICE OF THE REGIONAL DIRECTOR

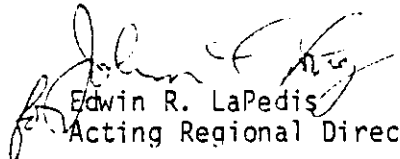
Gus J. Karabatsos
Chief, Planning Division
Missouri River Division
Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

Thank you for the opportunity to review the draft environmental impact statement for the Missouri River, South Dakota, Nebraska, North Dakota, and Montana in compliance with Public Law 91-190, Section 102(2)(C).

It appears that the impacts expected to result from the proposed project and reasonable alternatives thereto have been adequately addressed.

Sincerely yours,


Edwin R. LaPedis
Acting Regional Director

cc:
Office of Environmental Affairs
HEW, Washington, D.C.

Council of Environmental Quality
Washington, D.C. (2 copies)

Appendix 2

32



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION VII
FEDERAL BUILDING
601 EAST 12TH STREET
KANSAS CITY, MISSOURI 64106

OFFICE OF
THE REGIONAL DIRECTOR

March 31, 1977

William E. Read
Brigadier General, USA
Division Engineer
Missouri River Division
Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

Re: Draft Environmental Impact Statement
Missouri River--South Dakota, Nebraska,
North Dakota, and Montana

Your letter of 9 February 1977 to Mr. Max M. Mills has been referred to me for reply.

Thank you for the opportunity to review the above referenced DEIS and to comment on the action to be taken.

Upon review, there appears to be no apparent impact on the programs of the Department of Health, Education, and Welfare.

Sincerely,

William H. Henderson
Regional Environmental Officer



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

March 22, 1977

REGION VIII

RECEIVED
8DE

Mr. Gus J. Karabatsos
Chief, Planning Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

This is in response to your draft environmental statement on the Missouri River, South Dakota, Nebraska, North Dakota and Montana.

We note that your environmental statement does not discuss possible changes in downstream flood areas, and feel that this area should be addressed. As you know, this Department's main areas of concern in responding to a draft environmental statement are (1) the consistency of an action with the comprehensive planning for the area; and (2) the action's impact on housing, particularly in an urban environment. Our review indicated that you have adequately addressed these areas of HUD's jurisdiction as assigned by CEQ.

Sincerely,

Sandra K. Woods

Robert J. Matuschek
Assistant Regional Administrator
Community Planning and Development

Appendix 2

34

Insuring Offices

Casper, Wyoming; Denver, Colorado; Fargo, North Dakota; Helena, Montana; Salt Lake City, Utah; Sioux Falls, South Dakota



Office of
Chief

United States Department of the Interior

BUREAU OF MINES

BUILDING 20, DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Intermountain Field Operations Center

March 22, 1977

Division Engineer
Army Corps of Engineers
Missouri River Division
Omaha, Nebraska 68101

Dear Sir:

As requested by the Director, Office of Environmental Project Review, Department of the Interior, we have reviewed the Draft Environmental Statement for the Missouri River - South Dakota, Nebraska, North Dakota, and Montana (ER 77/140), which was prepared by the Corps of Engineers, Missouri River Division. We offer the following comments:

Page I-15 of the draft environmental statement indicates that the Missouri River Project would require the acquisition of 1,290 acres near Fort Peck, Montana. Page I-23 of the text notes that construction of the Gregory County pumped-storage facility would require the acquisition of an additional 1,550 acres. The text doesn't say, however, whether mineral evaluations of the land to be purchased have been made. The draft statement also fails to mention whether any transmission lines or pipelines would have to be removed or relocated during the course of construction.

Page II-6 of the subject statement states that future demands for Missouri River water are likely to increase owing to requirements for irrigation projects and developing coal resources. The impact that the Missouri River Project would have on municipal, agricultural, and industrial water supply should be discussed in greater detail. It is difficult to determine whether the project would increase or decrease the supply of water available to agricultural or industrial users. The statement should clarify this point.

The statement also should discuss in greater detail the economic benefits likely to accrue to communities and industries when the project is complete. Specifically, the benefits to be derived from additional hydroelectric power capacity at Fort Peck, Montana, and Garrison, North Dakota, should be discussed.

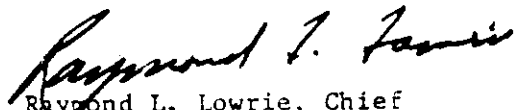


Appendix 2

We also suggest that sentences referring to the harvesting of quartzite and sedimentary rock in the text be reworded to read "the mining of quartzite and sedimentary rock."

With the exception of the points just raised, the information presented in the draft environmental statement seems adequate.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Raymond L. Lowrie".

Raymond L. Lowrie, Chief
Intermountain Field Operations Center



United States Department of the Interior

IN REPLY REFER TO

1793(D-380)

BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
DENVER FEDERAL CENTER BUILDING 50
DENVER, COLORADO 80225

ER 77/140

Division Engineer
Missouri River Division
Army Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

MAR 23 1977

Dear Sir:

We have been asked to prepare the Bureau of Land Management's comments on the Draft Environmental Impact Statement for the Missouri River, South Dakota, Nebraska, North Dakota and Montana. General and specific comments appear below.

General Comments

Our reviewers found two serious deficiencies in this document:
(1). the net impacts on each environmental component at each project site were not clearly presented and (2). a discussion of cumulative effects on the Missouri River system as a whole appears to be lacking.

We feel that the way the impacts chapter is organized may have created the former problem. When types of impacts are used as major subdivisions, effects on each environmental component are discussed under several different headings. Impacts on wildlife, for example, are mentioned in more than six different sections. Arranging material in this fashion makes it very difficult for the reader to grasp net effects.

Chapter 1

Recreation

Section 1.56: It seems that constructing 5,400 linear feet of revetments and 16,200 linear feet of flow control structures between Gavins Point and Ponca State Park is inconsistent with the proposal to declare that reach of the Missouri River a National Recreation River. The Wild and Scenic Rivers Act (P.L. 90-542) states that a recreational river must be in a "free-flowing condition" (Section 2(b)). "Free-flowing" is defined in the Act (Section 15(b)) as "existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping or other modification of the waterway."



Appendix 2

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Section 1.59: Both this section and Table 6 mention facilities that will be developed along the reach proposed as a National Recreation River. These facilities should be described. What kind of development is proposed? Where is it proposed?

Chapter II, Environmental Setting Without the Project

The chapter does not include a sufficient description of climatic factors. Since the proposed action will bring about changes in fluvial erosion and sedimentation, data describing the climatic factors that influence these processes are needed as a basis for impact analysis. We suggest including the information listed below.

1. A list of the National Weather Service Stations where data characterizing the region's climate were obtained
2. Typical monthly precipitation totals based on long-term averages
3. The percentage of total precipitation attributable to snowfall
4. Mean monthly minimum and maximum air temperatures for selected stations
5. Data on the spatial extremes of mean monthly precipitation and the extreme values of monthly totals over the years of record

Recreation

The document should provide figures quantifying visitor participation in the area's important recreation activities. Without baseline data of this sort, the impacts of re-regulation dams and river level fluctuations on fishing, boating, and other activities cannot be analyzed adequately.

Cultural Resources

Page II-14: The Corps should expand its account of field inspections conducted to determine the nature and extent of cultural resources affected by the various projects. The section should tell what methods were used for "physical reconnaissance" and report the results of the field inspections.

Chapter III, Relationship of the Proposed Action to Land Use Plans

The DES should discuss the proposed project's relationship to any regional water quality planning that is being carried out pursuant to Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500). Designated 208 areas should be identified.

Chapter IV, Environmental Impacts of the Proposed Action

Page IV-1: This section mentions changes in turbidity that are expected to occur because of the proposal. Simply identifying expected changes in turbidity does not give the reader an adequate picture of impacts on river system processes. A discussion of sediment concentration and sediment discharge in relation to streamflow should be included.

If state standards for turbidity exist, the section should relate expected changes to these standards.

Recreation

It seems that the revetments and flow control structures that will be located in the proposed National Recreation River would visibly alter the river flow, thereby lessening the visitor's feeling of being on a "free-flowing river." This effect should be mentioned in the section on adverse impacts.

Cultural Resources

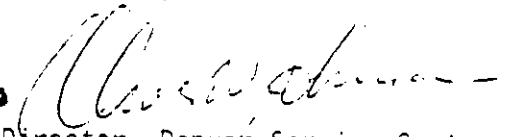
The environmental statement does not address itself to ways that increased recreation may impact cultural resources. Because increased access to the proposed National Recreation River is being provided such impacts could reasonably be expected to occur.

Chapter IX, Coordination

Consultation and coordination with local and state officials about planning pursuant to Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) should be described here.

The section of cultural resources coordination does not include replies from the State Historic Preservation officers in Nebraska, North Dakota, and Montana. If no replies were received, the document should say so.

Sincerely yours,

Acting 
Director, Denver Service Center



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (dew)
SECOND COAST GUARD DISTRICT
FEDERAL BUILDING
1520 MARKET ST.
ST. LOUIS, MO 63103
16004
18 March 1977

BG William E. Read
Division Engineer
Missouri River Division
Corps of Engineers
P. O. Box 103, Downtown Sta.
Omaha, NE 68101

Dear General Read:

The draft report of your investigation of the Upper Missouri River (Umbrella Study) has been reviewed. Although we have no comments to offer, we appreciate the opportunity for review.

Sincerely,

RALPH W. H. BARTELS
Commander, U. S. Coast Guard
DOT Member
Missouri River Basin Commission

Copy to:
Mr. Ray Hogrefe, Alternate DOT Member, MRBC

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Federal Building-U. S. Courthouse, Room 345, Lincoln, Nebraska 68508

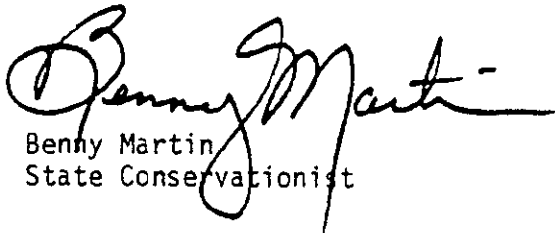
February 24, 1977

Brigadier General William E. Read
Division Engineer
Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

We have reviewed the Draft Report and Environmental Impact Statement for the Upper Missouri River Umbrella Study. I feel you have done a good job of displaying both the beneficial and adverse effects of the proposals. Therefore, I have no comments or recommendations for change.

Sincerely,


Benny Martin
State Conservationist

Appendix 2

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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box 970, Bozeman, Montana 59715

March 9, 1977

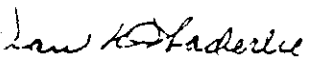
Gus J. Karabatsos
Chief, Planning Division
Department of the Army
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

We have reviewed the draft environmental statement for Missouri River--
South Dakota, Nebraska, North Dakota, Montana. We find no controversial
items in the statement within the realm of the Soil Conservation
Service's expertise and responsibilities. We find no conflict with
SCS on-going or planned programs or projects.

We appreciate the opportunity to review and comment on this proposed
work on the Missouri River.

Sincerely,


Van K Haderlie
State Conservationist



Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

April 6, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Corps of Engineers, Missouri River Division
Department of the Army
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

This is in response to your request of February 7, 1977 for comments on the draft environmental statement for the Missouri River, South Dakota, Nebraska, North Dakota and Montana. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council on Historic Preservation has determined that while you have discussed the historical, architectural and archeological aspects related to the undertaking, the Council needs additional information to adequately evaluate the effects on these cultural resources. Please furnish additional data indicating:

- I. Compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320). The Council must have evidence that the most recent listing of the National Register of Historic Places has been consulted (see Federal Register, February 1, 1977, and monthly supplements each first Tuesday thereafter), that all cultural resources which will be affected have been professionally identified, and that either of the following conditions is satisfied:
 - A. If no property included in or eligible for inclusion in the National Register is affected by the project, the statement must contain an account of steps taken in compliance with Section 106, as amended, and a comprehensive discussion of the contemplated effects

Appendix 2

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Page 2
April 6, 1977
Mr. Gus J. Karabatsos
Missouri River

on the property. The "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) detail the steps a Federal agency must take to determine effect and comply with Section 106, as amended.

II. Contact with the State Historic Preservation Officer.

The "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) for compliance with Section 106, as amended, of the National Historic Preservation Act of 1966 require the Federal agency to demonstrate consultation with the appropriate State Historic Preservation Officers commensurate with the effect on cultural properties identified.

Should you have any questions or require any additional assistance, please contact Brit Allan Storey of the Council's Denver staff at P. O. Box 25085, Denver, Colorado 80225, or (303) 234-4946, an FTS number.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Louis S. Wall", with a large, sweeping flourish extending from the end of the name.

Louis S. Wall
Assistant Director, Office
of Review and Compliance



UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

MAR 29 1977

William E. Read
Brigadier General, USA
Division Engineer
Department of the Army
Missouri River Division
Corps of Engineers
P. O. Box 103
Downtown Station
Omaha, Nebraska 68101

Dear General Read:

This is in reply to your letter of February 9, 1977, that transmitted a draft Appendix 1 of the Technical Report of the Upper Missouri River Umbrella Study and the associated draft Environmental Impact Statement. We had earlier separately received the draft EIS from Mr. Karabatsos of your Planning Division. We prepared comments on the draft EIS and these are being processed, along with other ERDA staff reviews, through ERDA's normal EIS review procedures. You should, therefore, be receiving those comments shortly through regular channels. However, since we did not have the draft Appendix 1 report during our earlier review, I have enclosed a few additional comments on this report that I hope will be helpful. Due to staff limitations, these are based on only a brief review.

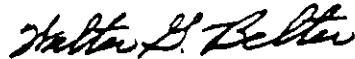
I would like to specifically mention here that we would certainly support the final recommendation in your draft, namely that Congress urge the preparation of a water management plan that will resolve jurisdictional and other issues surrounding future water use. However, as pointed out on page C-15, the States appear to be reluctant to engage in such activity until their own water plans have been updated; it would be of interest for the report to state what schedules exist for such updating and any encouragement (or assistance) from Congress which might be specifically directed to this problem. We note that page C-39 says that there is enough water in the main stem so it is probably not necessary to institute some broad systems of priority social preference for water uses; hence, reaching Federal/state agreement on a management plan should not have that hurdle to pass and progress should therefore be easier.



Appendix 2
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William E. Read

Thank you for the opportunity to review these drafts. As you know, ERDA has a potential interest in the Upper Missouri Basin, with respect to development of its resources and the protection of its environment.



Walter G. Belter
Assistant Director
for Technology Liaison
Division of Technology Overview

Enclosure:
As stated

cc: F. Leone, NEPA, w/encl.
J. Neuberger, MRBC, w/encl.

Comments on Draft Appendix I of Technical Report
UMRB Umbrella Study

1. In general, the treatments of alternatives to the proposed addition of hydropower do not seem adequately handled, whether pro or con. For example, on page D-20, it is not clear at all why oil-fired combustion turbines were considered the most viable thermal-generation alternative retained for further analysis, since much of today's energy thrust is to convert from oil to coal where possible and to reduce overall use and import of oil. Although such turbines are least expensive in first cost perhaps by 50 percent or so compared to other fossil systems, they may be many times as costly in generation expense. In addition, note that page C-23 seems to show that the replacement of any "lost" hydropower generation due to depletion (and, by extension, presumably also any noninstalled capacity might be termed "lost" generation) is much more expensive for combustion turbines than for coal. Although page D-6 says that combustion turbines are the least cost alternatives, it is not clear how such a conclusion was reached, even though there is reference to apparently considering only least "economic" cost.

It appears that the treatment of alternatives needs to be clarified and that a concept of total social cost needs to be made more explicit. For example, were the possible differences in air-quality impacts considered in choosing between coal-fired and oil-fired generation. Although such factors might not change the overall conclusions, they probably still should be specifically included.

2. Even more broadly, it is not clear that fossil generation vs. hydropower have been treated equally in arriving at the conclusion that hydropower is to be preferred. Although the general underlying premise of the conclusion seems to be that there is plenty of water in the reservoir systems so why not use it for hydropower, rather than just spill it, one might wonder whether a full consideration of the eventual worth of water upstream of the two dams (say, for irrigation) might not make it more advisable to not release this water for hydropower but to keep it upstream; if this concept of eventual future, location-dependent worth of water were to be found to have any validity, then the possibility of instead using fossil generation (with once-through cooling) upstream with use of outfall water for agriculture might appear more attractive. For full- and even-handed treatment, it seems the draft should discuss such considerations. One might note that page C-32 states that, in terms of water depletion for other uses, thermal generation is 6000 times as effective as hydropower for each water unit depleted: one could wonder why this argument might not also apply in some measure to water depleted for hydropower itself. As it now stands, the proposed additional hydropower might appear to a skeptic to have been an a priori conclusion without much adversary argument.

3. In general, the proposed added 450MW of hydropower at Ft. Peck and Garrison do not seem to be well related to specific demand growth. Page C-77 says that 37,500MW of new capacity will be needed in the next 20 years and page D-20 indicates that these two new plants are targeted by FPC for loads in the mid 1980's. Where are these loads specifically expected to arise; if concentrated, would they be better served by a fossil plant near the load than hydropower possibly generated at a distance. What are the existing plans for new capacity referred to on page C-78 and how do the hydropower additions fit into those scheduled additions vs. projected demand. The report should discuss this matter of "need for hydropower" more thoroughly and on a time/need basis.
4. Page C-82 lists comments made by public participants. It would be helpful if some sort of tabulation could be prepared to make specific statements concerning how the selected plan responds (or does not) to the concerns of local people. This same display technique should be applied to all the comments of other agencies in reviewing the plan: although other appendices contain the detailed agency responses, a summary table should be included in this draft.
5. Page C-5 - This accurately states that FWCPA of 1972 now covers all U.S. waters (not just navigable) but we understand that legislation has been introduced in Congress to return to the former definition of covered areas.
6. Since page C-79 indicates fossil power generation will be about 60 percent of the regional total by 1985, it is not clear why page C-6 (#19) does not include their once-through cooling as a significant nonconsumptive use.
7. Page C-18 (#47) says the systems can tolerate (i.e., maintain 6000 CFS at Gavins Point) an 11-year drought with reduction of natural yields to 16.3 million acre-feet per year. It is not clear whether this refers to equal yields every year at the drought level, or to an average yield of 16.3 MAF. We note that page B-7 (#14) cites historic annual low flow of 10.6 MAF. Paragraph #48 further says that sustained upstream uses in excess of 16.3 MAF cannot be tolerated without additional storage capacity. The text should clarify whether the system can indeed tolerate a year or more of the lowest flow, particularly if the system "tolerance" depends on having water available for upstream (i.e., location-dependent) uses as well as the downstream requirement of a minimum of 6000 CFS at Gavins Point. The question of location dependence seems important with respect to whether the 3 MAF presumably potentially available for industrial (and energy) use (i.e., the 16 MAF minus all other projected uses) could indeed be available every year for energy development (if it was decided to so market). If not, what is the reliable water supply number in years of lowest flow.

8. Page C-19 (#50) - We agree that 10000 AF/yr. is a conservative upper limit for high-BTU gasification processes; some more advanced designs with special (dry) cooling arrangements have been estimated to need as low as 4300 AF/yr. Some wet-cooling processes also go as low as 7400 AF/yr. On the other hand, some coal liquifaction process might be substantially higher; estimates from 13000 to 30000 AF/yr. exist for different plant designs; solvent refined coal process estimates, however, range from 2000 to 5500 AF/yr.
9. Page C-19 (#52) - The 14000 AF/yr. consumption for a half-million people looks low, even though quoted from the NCP study.
10. Page C-22 (#58) - It is not clear how (or why) reservoir levels would remain essentially unchanged during maximum drought and still supply all necessary uses. Additional discussion would be helpful to explain the "less water in less water out" operating principle in terms of supplying needs in drought years.
11. Page C-40 (#97) - This should be updated to reflect the current negotiations to extend the MOU (currently to May 1977).
12. Page 7 of the draft "Recommendations." Since no specific needs to acquire Indian lands have been so far identified, perhaps it would be better not to raise the issue of federal acquisition at this time since the Indian attitude could be that the land would not be available for sale at any price or for Federal preemption and unnecessary opposition might be raised.

Missouri River Basin Commission

John W. Neuberger
Chairman
Archie D. Chelsoth, Minnesota
Vice-Chairman

Suite 403 • 10050 Regency Circle • Omaha, Nebraska 68114

"A Presidential State-Federal River Basin Commission"

March 23, 1977

Brig. Gen. William T. Read
Dept. of Army Member, MRBC
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

Thank you for the opportunity to review and comment on your draft report on the Upper Missouri River (Umbrella Study), the draft Environmental Impact Statement and the draft of your proposed recommendations.

Although there appear to be some areas of contention remaining, which are to be expected considering the nature of the proposals and recommendations, you and your staff are to be complimented on the extensive coordination with Federal and State agencies, and others, conducted during the study.

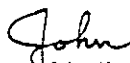
As you know, we are in the process of preparing MRBC's first-cut CCJP for the Missouri River Basin. The staff has reviewed your proposed recommendations to determine if there are any conflicts with the draft CCJP recommendations and the following comments are furnished for your further consideration.

With reference to the proposed bank stabilization work in the Fort Randall Dam-Miobrara River reach, the Nebraska Game and Parks Commission has proposed a wild and scenic river study of that same area.

The report on Status of Electric Power in the Missouri River Basin, dated October, 1976, published by MRBC, lists several scheduled or planned steam generation plants in the river reach below Garrison Dam. Although your report appendix E discusses existing intakes located in this area, it appears that some additional discussion pertaining to future thermal plants to be located in this area would be appropriate.

In addition to these formal comments, I am enclosing some MRBC staff review comments which may be useful to your staff in finalizing the report and EIS. They are enclosed only for that purpose.

Sincerely,



John W. Neuberger
Chairman

JWN:ls

Enclosure

COMMISSION MEMBERS

Colorado; Iowa; Kansas; Minnesota; Missouri; Montana; Nebraska; North Dakota; South Dakota; Wyoming; Department of Agriculture; Department of the Army; Department of Commerce; Energy Research and Development Administration; Environmental Protection Agency; Federal Power Commission; Department of Health, Education and Welfare; Department of Housing and Urban Development; Department of the Interior; Department of Transportation; Yellowstone River Compact Commission; Big Blue River Compact Administration.

Appendix 2

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Unofficial MRBC Staff Comments on the Umbrella Study

Hydropower addition at Garrison - As indicated by material presented in the report and EIS, it is not clear why fish and wildlife interests appear to favor a no regulation concept for hydropeaking flows at Garrison, rather than reregulation structure. Superficially it appears they prefer aquatic losses to terrestrial ones, due to concerns that the terrestrial values of the Riverdale Game Management Area would be severely affected. Alternative ways to mitigate or reduce terrestrial effects by the reregulation concept, such as relocation of the area, or to installation of drains might be discussed. A preference to aquatic degradation (rather than terrestrial) is difficult to understand as the existing stream fishery would likely benefit greatly from the plan element to enhance fisheries at Lake Oahe.

Bank Stabilization - The EIS notes that bank stabilization in the Garrison reach will cause some possible adverse indirect effects on bottomland forests as forests are cleared for pastures or installation of irrigation systems. This appears likely as 4 center pivot installations were noted on the floodplain in the Square Butte area, and rapid scanning of aerial photos in the Garrison to Bismarck reach, indicated that over 1,300 acres of forests, woodlands, or wetlands could be converted behind the existing and proposed bank stabilization sites. Since river bottoms are the most productive habitat for many wildlife species in central North Dakota, and past losses have been severe, more information on the effect of this plan element on bottomlands, including likely acreages involved, would be helpful to quantify the extent of adverse effects on the bottomland habitat.



United States Department of the Interior
FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

ENV

MAILING ADDRESS
Post Office Box 25400
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION
10597 West Sixth Avenue
Lakewood, Colorado
Across From Federal Center

APR 21 1977

Brigadier General William E. Read
Division Engineer
U. S. Army Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Road:

This is in response to the memorandum of Director Bruce Blanchard, Office of Environmental Project Review, dated February 9, 1977, requesting our review and comment on your Draft Environmental Impact Statement for the Missouri River, South Dakota, Nebraska, North Dakota, Montana (ER 77/140). These comments are provided on a technical assistance basis only and do not constitute the official views of the U. S. Fish and Wildlife Service or the Department of the Interior's position which will be provided during the formal review process.

General Comments

Approximately 1.2 million acres of land and irreplaceable river bottom habitat have been lost as the result of inundation by the six main stem reservoirs. Of the original 1,039 miles of Missouri River between Fort Peck, Montana, and Sioux City, Iowa, only about 400 miles of open river remain. An analysis of project features and their relationships and impacts on fish and wildlife resources of the remaining portions of the Missouri River reveals several areas of major concern.

The anticipated project impacts resulting from the proposed hydropower peaking operations will seriously degrade the aquatic resources in the Missouri River in Montana and North Dakota. The statement describes two hydropower alternatives for a 185-megawatt power addition at Fort Peck Dam: (1) a 185-megawatt power addition with a reregulation dam 8 miles downstream (Range 4) and (2) a 185-megawatt addition without reregulation. A third alternative was identified earlier by the Corps of Engineers and included a 185-megawatt power addition with a reregulation dam 5 miles downstream (Range 3). An analysis of these three alternatives by the Fish and Wildlife Service concluded that the third alternative described above had the least initial accumulated effect on fish and wildlife resources. We recommend that the third alternative be described and considered in the statement.

Appendix 2

Analysis of impacts accruing from the selected alternative of a 185-megawatt power addition with a reregulation dam 8 miles downstream (Range 4) is inadequate. Data quantifying losses in habitat units for the selected, as well as other, alternatives were provided the Corps of Engineers by the Fish and Wildlife Service several times during the planning process. The latest update of habitat loss information for the selected Fort Peck alternative was included in a letter dated January 14, 1977, which quantified losses under two different management assumptions. This information was not used. We recommend this information be used. The statement then would more adequately address impacts to fish and wildlife resources occurring from differing alternatives if losses from all alternatives were quantified using habitat unit evaluations. The extent that losses will be reduced by implementation of mitigation recommendations could then be addressed in more specific terms, and the amount of unmitigated losses would be readily apparent. The recommended plan does not include operation and maintenance monies for required mitigation proposals and leaves an unnecessarily large unmitigated wildlife habitat loss.

The proposed additional hydropower units for Garrison will have a major impact on the fishery. The "pike hole" area and the tailrace fishery will be lost, while a significant reduction in the river fishery for 30 miles downstream will occur.

Since North Dakota has only about 80 miles of free-flowing Missouri River left, degradation of 30 to 40 miles of the river is a serious impact. While the Fish and Wildlife Service is not opposed to additional hydropower being generated, there are less destructive alternatives that need to be studied. An alternative such as an offstream pumpback storage unit may not only eliminate the adverse environmental effects on the free-flowing stretches of the Missouri but would diminish the need for bank stabilization.

The conversion of the Riverdale Game Management Area from a woodland habitat to a marsh-savannah type will be detrimental. Woodlands are a scarce habitat type in North Dakota. For this reason they provide unique public values that are not easily replaced. While most other tracts of woodlands up and down the Missouri are subject to development, this publicly owned tract can be kept in a natural state if there is no rise in ground-water levels.

The mitigation effort for the proposed peaking operation described in the statement will not prevent damages to the operation of the fish hatchery, in our opinion. Our hydrologists predict impacts to the National Fish Hatchery to be much more severe than those recognized by the Corps. This was pointed out in previous correspondence to you.

These potentials should be specifically addressed in the EIS and other alternatives developed.

In view of the significant losses of fish and wildlife resources and associated habitat, we oppose the construction of the hydropower features as currently planned at Fort Peck and Garrison Dams.

The Gregory County pumped-storage project appears to be acceptable from a fish and wildlife standpoint, provided fish screening-type devices and proper energy dissipators are used in the afterbay intake area.

We agree that additional hydropower units at Fort Randall Dam should be deferred. Additional units at Randall would have adverse impacts on fish and wildlife resources equal to or greater than those anticipated at Fort Peck and Garrison.

The portion of the statement covering bank stabilization needs to be expanded to include a more detailed analysis of alternatives, and additional information should be provided on the economic analysis of this proposal. In past correspondence to you, we agreed to a limited amount of bank stabilization under the Missouri River Bank Demonstration and Evaluation proposal. The effect of that experimental bank stabilization work on fish and wildlife resources should be assessed upon completion of a limited number of demonstration sites. Until the experimental or demonstration bank stabilization structures have been evaluated, we oppose all bank stabilization as part of the Missouri River Umbrella Study.

We recommended an alternative to bank stabilization in our letter dated January 12, 1977. The alternative, based on acquisition of a buffer strip in lieu of bank stabilization, is the only assured method for protecting existing fish and wildlife habitat along the Missouri River. It also looks to be a more economical alternative in many instances. Bank protection costs range from \$50 to \$94 per linear foot according to the statement. Depending on the type of structure used, an acre with 400-foot river frontage will cost about \$5,000 to \$9,400 per acre. This is several times the value of the land to be protected in most instances. The Corps of Engineers' cost estimate for bank protection for 7,680 linear feet of intermittent, composite revetment abutting the Karl E. Mundt National Wildlife Refuge is \$585,200. The recent purchase price (1974) of the 780-acre fee title to the lands within the refuge was \$160,000, or about 27 percent of the cost to stabilize these banks. This alternative should be fully discussed in the statement.

Acquisition in fee title and/or easements also seems more in keeping with the Recreation River concept. The construction of 100,035 linear feet

of revetment, 95,580 linear feet of hardpoints, 97,200 linear feet of low-control structures, and 10,530 linear feet of vane dikes within the Gavins Point Dam to Ponca, Nebraska, reach appears to be incompatible with the concept of a Recreation River. Most of the bank stabilization work will be accomplished in one of the most pristine reaches of the Missouri River. The absence of bank protection structures in this reach of river is one important reason for this condition.

The statement indicates declining streamflow, with an "ultimate" possibility of reducing today's average annual flow at Sioux City by more than 40 percent, but concludes this will not eliminate the need for the bank stabilization. The basis for this conclusion is not clear. It should be substantiated.

It is very doubtful that the benefits stated for the fish-rearing ponds will ever be realized. Productivity in these reservoirs is largely controlled by water chemistry and regulated by such factors as geographic location, soils, adjacent vegetal land cover, land use, and other factors affecting or characteristic of the drainage basin. During filling of the reservoirs, an enriching supply of nutrients provided by leaching action on newly inundated soils stimulated photosynthetic activity and ultimately led to unusually high densities of bacteria, benthos, and plankton. This abundant food supply, combined with the creation of extensive favorable spawning and nursery habitats (primarily flooded vegetation) for a number of littoral-spawning fishes, resulted in a very high survival of young, which, in turn, resulted in a "population explosion" of some species. After the initial period of high productivity, the abundance of the basic food organisms declined as the nutrient supply was depleted or exhausted, and erosion, slumping, and siltation destroyed spawning and nursery habitats of many littoral-dwelling species. As a result, fish species either disappeared, or their population numbers declined to much lower levels. In short, it was the combination of high nutrient input, abundant food supply, inundation of stable water levels during spawning and early-life stages, and minimal erosion and siltation that resulted in the increased abundance of a number of forage fishes as well as northern pike.

Water-level fluctuations inherent in the current and foreseeable future water regimen in these two reservoirs are not favorable to the production of semiaquatic plants or other conditions favorable to littoral-dwelling fishes. For example, present littoral conditions in most of the selected pond sites in Lake Oahe show the continuing destructive effects of wave action, wind erosion, slumping, siltation, and accompanying turbidity. These interacting forces are not favorable to littoral plant establishment

and sustained growth. Indeed, neither terrestrial nor semiaquatic vegetation has developed to any extent anywhere along the shore in the littoral zone since attainment of full pool in Lake Oahe nearly 10 years ago.

Provision of aquatic vegetation will not ensure increased abundance of various forage fishes or northern pike. Extensive beds of natural aquatic and semiaquatic vegetation, for example, have developed in Lake Sharpe where a stable water level has been maintained for over 5 years, yet there has been no upsurge in populations of either forage fishes or any of the principal littoral-spawning species including the northern pike, buffalofishes, or carp. Rather, the overall abundance of the forage fishes has declined during this period, and there is no evidence of recent successful spawning of the northern pike.

On a short-term basis (5 years), successful vegetal growth along the shoreline and littoral can only be expected under favorable water levels and if costly cultural techniques - fencing and the application of inorganic fertilizers - are employed. Studies conducted by the University of South Dakota indicated that vegetal plots along the shores of these reservoirs were successful only if protected from free-grazing cattle, and in some locations the application of inorganic fertilizer stimulated plant growth. On a longer-term basis, however, some of the embayments where topography is favorable (gentle slopes and where sedimentation has been active) will probably become revegetated naturally.

Because of its specialized spawning and nursery requirements, the northern pike virtually disappeared from the Missouri River impoundments following attainment of a full reservoir system. The development of climax walleye populations in five of the six Missouri River impoundments (sauger predominates in Lewis and Clark Lake) indicates that, independently of water-level fluctuations, environmental conditions were favorable for these predatory species. Because of the inherent limited food supply, artificial introductions of another voracious predator can only result in reduction in the size and quality of the walleye populations in Lakes Francis Case and Oahe.

The creation of several subimpoundments or excavated ponds in favorable locations along all of the reservoirs appears to be the most viable alternative to the rearing ponds proposed for Lakes Francis Case and Oahe. The objective of this alternative would be to add a variety of fish and wildlife habitats to supplement the reservoir system. Two examples exist of relatively successful fish and wildlife habitats that were created after closure of the mainstem dams. The first of these, Lake Yankton, is located below Gavin's Point Dam, and the second is a marsh below Oahe Dam.

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Lake Yankton provides a variety of fish species for the angler and, in addition, affords public hunting access to waterfowl concentrations during the fall. It also provides favorable habitat for a variety of birds and mammals that are either seasonal or permanent residents. Several of the prime fish stocks in this subimpoundment are presently being maintained through stocking. However, management techniques could be adopted to assist natural reproduction.

The marsh area below Oahe Dam supports a greatly diversified assemblage of fish, birds, mammals, plants, and trees. Northern pike are able to reproduce in the upper impounded area because of the presence of favorable semiaquatic vegetation. The marsh is also a prime resting and feeding ground for migrating waterfowl and a haven for pheasants, deer, and ducks during storms.

Sites should be limited to those that would fill naturally by runoff, yet be free of the influx of chemicals or nutrients from agricultural operations. Areas should be over 20 acres and provide for a diversified habitat - trees, shrubs, grasses, aquatic and semiaquatic plants. The sites must be fenced to exclude cattle and the encroachment of agriculture. The subimpoundments would be managed primarily for fish production, and the key to the success of this type of habitat management is continued maintenance of conditions that are in harmony with the basic biological requirements of the prime species.

A second alternative is to augment the fish forage base through reestablishment of littoral vegetation. This is simply a modification of the proposed seeding plan for Lakes Oahe and Francis Case and calls for the fencing of protected embayments that are known to be productive fish-spawning and nursery grounds and the seeding and/or sprigging along the shore during years of low water. Protected littoral areas with some form of vegetation or vegetative substrate are required for the successful spawning and early-life survival of most of the warm water fishes in the Missouri River impoundments. Sites selected for fencing and seeding should be relatively free of slumping and sedimentation from runoff or wave action. Seeding and/or sprigging would be done only in years when low water levels were anticipated so that maximum survival and growth could be expected. Sites should not be limited to Lakes Oahe and Francis Case but ought to be established wherever and whenever suitable conditions exist in all of the reservoirs.

We recommend consideration of these alternatives.

Specific Comments

Page iv. Hydropower - Garrison

Another sentence should be added between the first and third sentence, stating, "Peaking operations will accelerate erosion both in the channel and along the streambank." The second sentence is misleading. It should be expanded to read, "While the stage fluctuations will alter fish movement and spawning actions, alterations will be in the form of eliminating, inhibiting, or seriously jeopardizing fish movement and spawning actions. The net result will be a decrease of biomass of desirable fish due to the increased discharges." The third sentence should be expanded to include the loss of the tailrace fishery as well. This paragraph should be expanded to include the impacts on the Garrison Dam National Fish Hatchery caused by the increase in ground-water levels.

Page v, Paragraph b. Adverse Environmental Effects - Hydropower - Garrison

The third sentence should describe how some fish species unable to withstand peak- or zero-flow discharges will be eliminated. Overall degradation should be described as it was on page iv under the section entitled "Hydropower - Garrison."

This section should be expanded to include the adverse effects to the National Fish Hatchery below Garrison Dam.

Although the reduction in recreation at the Garrison tailwaters is estimated, no estimate has been made on the reduction in the sport fishery. Although the elimination of the "pike hole" is documented, its importance to the river fishery, or what kinds of fish are harvested, needs to be discussed. This section needs to be expanded to include the tailrace fishery and to state its contributions to the sport fishery in the river.

Page 1-9, Paragraph 1.12

This paragraph states, "Since the location of the river channel is extremely variable and points of attack on the banks shift from season to season, the plan will be adjusted at the time of construction to insure compatibility with prevailing field conditions." We are not sure what is meant by ". . . adjusted at the time of construction to insure compatibility with prevailing field conditions." Our observation of structural control methods leads us to believe that they are self-perpetuating. That is, after one set of structures is completed, they divert flows to another area, resulting in new erosion and the need for

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further bank stabilization. After a set of structures is in place, the natural dynamics of the river will change eroding pressure points to portions of the river that had not been stabilized, thereby creating a need to protect these areas and so on down the system until the entire river is stabilized.

This possibility should be addressed as well as the likelihood of piecemeal bank stabilization leading to a totally channelized river.

Page 1-10, Paragraph 1.13

This paragraph states that, even with reduced flows, bank protection will be required. However, in view of the magnitude of the reductions, as indicated in paragraphs 65 and 69 on Pages C-26 and C-27, respectively, of the Technical Report, it looks as if bank stabilization would serve its purpose for only a short time.

Page 1-10, Paragraph 1.17

This paragraph states, "Although personnel of that agency have measured high bank losses as large as 10 feet of tree-covered, prime eagle-roosting habitat in one season, the U. S. Fish and Wildlife Service prefers bank loss to the stabilization work." Our letter of January 12, 1977, was explicit concerning our position on bank stabilization. Our statement has been taken out of context. It has not been demonstrated that bank stabilization structures are beneficial to fish and wildlife resources.

Page 1-21, Paragraph 1.36

This paragraph needs to be expanded to enumerate measures needed to compensate for the anticipated impacts that the rise in ground-water levels will have on the hatchery and hatchery operations. This should include such impacts as frost heave on piping systems, inability of the ponds to be dried out and disced, poor drainage of ponds, inundation of portions of the domestic sewer system and all four outside kettles, and settlement and related material stresses to all foundations, piping, and other underground structural components.

Page 1-21, Paragraph 1.38

Although this section identifies habitat loss, it does not indicate where this erosion will occur. It is highly doubtful that habitat will be lost equally along the entire length of the river. The estimation of 285 acres for mitigation is arbitrary and should be

dropped until such time that justification for this amount can be adequately established.

Page 1-23, Paragraph 1.45

No mitigation measures are recommended for the Gregory County project except possibly for cultural resources. We recommended that you consider methods such as screening the penstock area of the afterbay and incorporate into your design adequate energy dissipators to reduce the force that will contribute to expected turbidity problems from generating power.

Page 1-23, Paragraph 1.47

Some additional information is needed to clarify this paragraph. For instance, there is no mention of northern pike fingerling size. If everything goes right, the 13 ponds may be able to support 5 million 1-inch fish; however, 6-inch northern pikes will require many more ponds. Also, it is doubtful that stocking 5 million fish in the ponds will produce a fishable population in such a large body of water like Oahe. In any case, it is very unlikely that 180,000 additional fisherman days will occur from the stocking. It is also doubtful that planting seed will be successful. It is very doubtful, as well, that forage base improvement from planting of 300 acres of vegetation will eliminate the need for stocking prey species and provide northern pike with perpetual forage base. Small vegetated areas could be created, but their value to the ecosystem is unproven and unknown.

Page 1-15, Paragraph 1.48

In this paragraph it states the annual seeding task will be the responsibility of the sponsor. The sponsor should be identified.

Page 11-9, Paragraph 2.21

It should be noted that a viable population of paddlefish exists between Gavins Point and Fort Randall Dam and in the river between Gavins Point and Ponca State Park, according to our Northern Reservoir Research Team.

Page 11-10, Paragraph 2.23

We disagree with your statement indicating that, for the most part, fish movement through dams is insignificant. There is substantial movement at Fort Randall during the fall, all year at Gavins Point, and some movement at all dams.

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Page IV-1. Bank Protection

Add to this list, "Floodplain development will occur at an even faster rate on lands adjacent to the Missouri River."

Page IV-2. Garrison

Add to the list the anticipated adverse impacts caused by a rise in the water table on the Federal Fish Hatchery at Garrison.

Add that future fish populations will be reduced or eliminated for several fish species.

Page IV-3. Rearing Ponds

We question the validity of an increase of 180,000 fisherman days annually as a result of the rearing pond seeding plan.

These reservoirs have a good population of walleye, and maybe the emphasis should be placed on their management potential. It is unlikely the reservoirs will support both significant walleye and northern pike populations. It is conceivable that your plan could sustain a northern pike population within localized areas. However, in order to reintroduce the northern pike in certain areas of the reservoirs, fencing to exclude livestock grazing and provide watershed protection is essential. We encourage the Corps to consider fencing out certain embayment areas to foster the success of the program.

Page IV-5, Paragraph 4.04

We question whether placement of structures totalling 130,000 linear feet affecting 23 percent of the present bank line is beneficial, at least to fish and wildlife. Not until the demonstration projects are evaluated can the beneficial and adverse effects on fish and wildlife resources be determined.

Page IV-6, Paragraph 4.08

This paragraph should be modified to read, "The Fish and Wildlife Service and the North Dakota Game and Fish Department have not been furnished enough data by the Corps to adequately assess the reregulation concept." This entire paragraph could be moved to the section on "Detrimental Effects of Hydropower" since no environmentally beneficial effects are presented or documented.

Page IV-10, Paragraph 4.22

This paragraph indicates that windrowed rock could become feeding sites for predators and hunting sites for man. The type of hunting should be specified.

Page IV-12, Paragraph 4.29

The last three sentences should be deleted. It appears to us that benefits are being claimed for both conditions: a bank-full situation and an almost dry-channel situation. Since the proposed flow regime is a marked departure from a natural river, these effects have to be considered detrimental.

Page IV-12, Paragraph 4.30

The sentence "Acquisition of 285 acres of predominantly bottomland is recommended by the Corps of Engineers to compensate for fish and wildlife losses" should be deleted. The Fish and Wildlife Service has not been furnished data to determine appropriate compensation needs, and it should be so stated.

Page IV-21, Paragraph 4.25

The last sentence should be changed to read, "The effect will diminish with the distance downstream as fluctuations dampen." It is not known what effects this will have on plant communities downstream since data have not yet been worked up to substantiate any effects, either way.

Page IV-21, Paragraph 4.60

This section should be clarified since it leads the reader to believe that a change in habitat from grassland and woodland to one of wetland and savannah will be good. In this case, a habitat type (woodland) being replaced by a habitat type (wetland) is not advantageous.

Page IV-23, Paragraph 4.66

This states that "The bureau does not regard as feasible an in-depth examination of alternative transmission schemes until the source of generation has been authorized by Congress." We suggest that the following statement be added to this paragraph: "The U. S. Fish and Wildlife Service does not believe hydropower alternatives can be selected and environmental impacts assessed until associated impacts from transmission line construction are analyzed." Transmission line

Appendix 2

construction could have such serious impacts combined with the other hydropower features as to make the project environmentally infeasible.

Page V-2, Paragraph 5.08

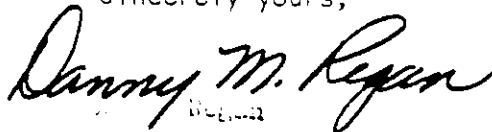
This sentence needs to address impacts to Garrison Dam National Fish Hatchery. Although some effects are recognized, the rise in ground-water levels has not been addressed.

Summary Comments

In view of the adverse impacts on fish and wildlife resources and associated environmental values, the Fish and Wildlife Service recommends that (1) hydropower peaking operations be deleted and less damaging alternatives such as offstream pumpback storage be considered, (2) bank stabilization measures be deferred until the effects of the Missouri River Bank Demonstration and Evaluation have been assessed on all reaches of the River including Gavins Point Dam to Ponca, Nebraska, (3) the free-flowing portions of the Missouri River in Montana, North Dakota, and South Dakota be recommended for study as a National Recreation River, and (4) fencing embayment watersheds be considered instead of the proposed rearing ponds at Oahe and Lake Francis Case.

In summary, it appears that the draft EIS on the Umbrella Study as related to the natural environment is inadequate. It could well be that since the Missouri River system is already extensively developed, the alternative of "do nothing" should be seriously considered. This "do nothing" alternative can be further substantiated by future estimates of flow depletions in the magnitude of 40 percent. Rather than new works that would completely degrade the remaining natural environment of the Missouri River, efforts could be explored to compensate past environmental exploitations of the river system.

Sincerely yours,

A handwritten signature in cursive script that reads "Danny M. Regan".

Regional Director

SIOUXLAND INTERSTATE METROPOLITAN PLANNING COUNCIL

Its Action

BOX 447
SBS INSURANCE EXCHANGE BLDG.
SIOUX CITY, IOWA 51102
TELEPHONE (712) 279-6255

April 5, 1977

Mr. Gus J. Karabatsos
Chief
Planning Division
Corps of Engineers
Missouri River Division
P. O. Box 103
Downtown Station
Omaha, NE 68101

Re: Umbrella Study

Dear Gus,

The following comments are given in response to the Missouri River Draft Environmental Statement dated February 7, 1977, and commonly called the "Missouri River Umbrella Study."

We agree with the bank protection measures proposed for the stretch of the Missouri River between Ponca State Park and Yankton. We believe that additional protection is needed on the right bank at Bolton Bend (approximate mile 764) and in Union County on the left bank at approximate miles 753 through 755.

We believe that immediate measures should be undertaken to preserve and protect the remaining woodlands, wetlands and wildlife areas in this stretch of the river (both shoreline and island). We agree with the proposal to designate this section of the river as a recreation river under provisions of the National Wild and Scenic Rivers Act.

Additional hydroelectric power generation capacity may be desirable. We feel that the economic and environmental cost of such additions should be evaluated and compared with those of coal fired alternatives. Re-regulation structures should also be completely studied.

All practical measures to retard stream bed degradation should be studied and implemented. Boundary disputes need to be settled.

A logical high water mark that will protect the river's capacity to carry water during flood flows should be established in conjunction with the states. This high water mark should be developed utilizing possible flood conditions from the Missouri River and its tributaries.

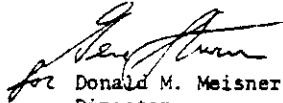
Navigation releases should be maintained from Gavins Point Dam. Additional storage capacity of this mainstem system should be fully investigated.

Mr. Gus J. Karabatsos
April 5, 1977
Page 2

We believe that the paddlefish can be maintained below Gavins Point Dam. We suggest that current studies concerning the paddlefish should be extended through the stretch of the river from Gavins Point Dam to Sioux City. The impact of snagging on the paddlefish, flathead yellow catfish, channel catfish and blue catfish should be studied.

Immediate efforts should be made to restore, maintain and protect oxbow and wetland areas.

Sincerely,


for Donald M. Meisner
Director

ko

Office of the Governor

Budget and Program Planning

Capitol Building - Helena, Montana 59601

Michael G. Billings
Director

March 14, 1977

General William E. Read
Division Engineer
Department of the Army
Missouri River Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

The State Clearinghouse has submitted your Draft EIS on the Upper Missouri River to the appropriate State Agencies. Their comments will be forwarded directly to you. If you do not receive comments from these agencies, a positive position may be assumed. The Clearinghouse does not review impact statements.

Please call if you have any questions regarding these procedures. My telephone number is 406-449-3616.

Sincerely,



Thomas L. Crosser
Clearinghouse Manager

TLC:cm

Thomas L. Judge, Governor

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

MEMBERS OF THE BOARD - CHAIRMAN CECIL WEEBING, DR. WILSON F. CLARK
VIOLA HERAK, WILLIAM BERTSCHE, DAVID S. DRUM, ROY HUFFMAN, CHARLES HACH

MDNR
John C. Orisk, Director

April 14, 1977

Brigadier General William E. Read
Corps of Engineers
Missouri River Division
P. O. Box 103, Downtown Station
Omaha, NE 68101

Dear General Read:

The enclosed comments pertain to the Corps of Engineers' Draft Environmental Impact Statement for the Missouri River Main Stem System, South Dakota, Nebraska, North Dakota, and Montana. Our comments are directed to those activities that directly affect Montana and reflects this agency's opinion. We have reviewed the comments sent to you by the Montana Department of Fish and Game and while we sympathize with their position we do not have the expertise available to either endorse or repudiate their specific comments. We do however feel that they have raised some legitimate questions that need to be answered before any further steps are taken towards the construction phase of the program. It is also our opinion that had the state been more directly involved in the study or at least informed of the progress of it that many of the questions that have surfaced would have been resolved during the study rather than after the completion of the draft E.I.S.

We support the concept of the two additional power generating units totaling 185 megawatt capacity and the appurtenant reregulation structure. Based on the draft report it seems that these are the types of projects that will benefit Montana at a minimal social and environmental cost to the Fort Peck area. There are questions relating to the location and operation of the reregulation structure, loss of recreation areas, and mitigation programs for the possible loss of the fishery that exists immediately below the existing dam. As such we will withhold final support pending our review of the final design plans and project's final E.I.S. It is our hope that the aforementioned problems can be satisfactorily resolved and that the program can continue towards the completion of the project.

32 SOUTH EWING, HELENA, MONTANA 59601

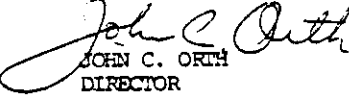
(406) 448-3712

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67

Brigadier General William E. Read
April 14, 1977
Page 2

It is this agency's opinion that if the plans of improvement for erosion control are authorized for construction, that appropriate entities of State Government will be willing and able to enter into appropriate agreements with the Federal Government to comply with the provisions of local cooperation specified in the Division Engineer's report.

Sincerely,


JOHN C. ORTH
DIRECTOR

JCO/OF/nj
cc: Lt. Governor
George Nicholas
Orrin Ferris
Jim Rosewitz

STATE OF MONTANA



DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601
April 8, 1977

Brigadier General William E. Read
Corps of Engineers, Missouri River Division
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

The Montana Department of Fish and Game has previously commented on the draft environmental impact statement for Missouri River Main Stem System, South Dakota, Nebraska, North Dakota, Montana (CE January 1977), as it affects the fish and game resource of this state. Those comments were presented at a public hearing sponsored by the Corps and held in Great Falls, Montana July 29, 1976. Our position on this issue has not changed since that time.

Our department, in continuing in this position, was not insensitive to the power problems being experienced by our nation, and did take cognizance of the project's energy producing potential. We were also forced to consider past experience with Corps projects and our dismal record of achieving concessions, compensation and mitigation related to fish and wildlife habitat losses occurring on Corps of Engineers' developments. In that context we cannot endorse construction of the reregulating dam below Fort Peck Reservoir as presently contemplated. Mollification of this position is contingent upon absolutely guaranteed mitigation of compensation as an integral part of any authorization.

Specifically, we offer the following comments on the draft EIS for Missouri River Main Stem System South Dakota, Nebraska, North Dakota, Montana (CE January 1977):

Based on environmental impacts and in line with our major responsibility to protect, preserve and investigate Montana's wildlife resource, it is our belief that the proposed project will significantly impact the fish and wildlife resource, both game and nongame animals in the area immediately below Fort Peck Dam.

We have evidence to indicate that over 1,000 paddlefish inhabit the dredge cut area. The lake trout fishery below Fort Peck will also be eliminated, and an important wintering mallard population threatened. Some valuable pheasant, goose, deer and nonsalmonid fish habitat will be lost. We have no option but to oppose such losses.

April 8, 1977

Critique of the EIS

1. Page II-9 - "...27 (warm water) species...common to the rivers and lakes (in the study reach)...only the mountain sucker is indigenous to the Missouri River." This statement is not correct. Many more species are present in Montana alone, and most are indigenous.
2. Page II-9 - "...31 fish species occupy Fort Peck Lake...37 species below (Fort Peck) dam..." Our research has so far disclosed 41 species in Fort Peck Reservoir.
3. Page II-9 - "...the only known viable population (of paddlefish)... occupy Lake Sakakawea and the river reach between the lake and Fort Peck." In contrast to this statement, there is an excellent paddlefish population in the Missouri system in Fort Peck Reservoir and the river reach above it. Further, the paddlefish is not on the decline in Montana, as stated, and we may in fact have the best quality paddlefish habitat in the entire Missouri River system.

In general, the section pertaining to paddlefish is inadequate. This species deserves more consideration in the EIS - particularly the relationship between Garrison Reservoir paddlefish and the Yellowstone River. No mention is made regarding the unique bow and arrow fishery for paddlefish which now exists in the dredge cuts, an area to be directly impacted.

4. Page II-10 - "Northern pike was an abundant and popular large-sized sport fish in each of the mainstem lakes during the 'filling' years." Confirmed reports of northern pike were not common in Fort Peck Reservoir until the late 1950's and significant northern pike fishing did not occur until the 1960's.
5. Page VI-1, 6.03 - Mention is made of time and effort invested in evaluating the environmental impacts on the area. This may be true; however, based on information in this EIS, adequate specific field research is lacking.
6. Page VI-14 - "A fishery similar to that existing below Fort Peck Dam will develop below the rereg dam." We simply do not believe this is a true statement. We believe the project will eliminate the present paddlefish fishery, and drastically impact the area's lake trout population.
7. Page IV-1 - "The rereg structure will warm...water from the dam, encouraging additional fish species downstream." Similar statement page IV-6. Implied benefits of encouraging additional fish species below the rereg structure due to warming of cold water are questionable. Slight warming may occur late in the week from an enlarged

April 8, 1977

pool; however, early week cold water discharges of high volume will cause considerable cooling. Thus, disadvantages of these fluctuating water temperatures would likely be more damaging than any potential benefit from short-term warming.

8. River fluctuations will not be virtually eliminated, as stated. Page I-15: "The weekend 'sag' from 9,400 cfs to 6,000 cfs will lower the river stage about 1 foot below the rereg dam." Page IV-1: "River fluctuations as a result of daily power peaking operations will be virtually eliminated downstream..." Page IV-6: "On weekends a stage change up to 2-1/2 feet may take place immediately below the rereg dam." Information presented appears to be contradictory. If the 2-1/2 foot stage change is accurate, this will result in fluctuations similar to existing conditions.

We feel the general subject of water-based recreation within the project area has been neglected. Many boaters, water skiers, swimmers and fishermen now using the 8-mile stretch of river will move to the dredge cut area, increasing the conflicts between recreationists.

At present we feel there is a "swimmer itch" problem in the Fort Peck trout pond (dredge cut trout pond). This could be a problem for swimmers once the main dredge cut is isolated from the river.

Proposed Mitigation

Should this project be constructed, we suggest the following measures to minimize the environmental impacts and mitigate for fish and wildlife losses:

Isolation of the dredge cuts cannot be considered as mitigation. As stated, this action "will require active fishery management to perpetuate a viable, useful fishery." When isolated, the dredge cuts will provide conditions suitable for rough fish species and eliminate desirable species unique to the area, such as paddlefish and lake trout.

1. Page IV-1 states that isolation of the dredge cuts without future management would reduce the habitat value by 44 percent from the present value. However, "with proper management practices it is reasonable to assume the reduction will be less than 44 percent." We therefore feel additional expenses required for fish stocking and chemical rehabilitation management must be included as mitigation in the project cost.
2. The passage of water into the dredge cut area to be isolated will allow passage of rough fish. The abundance of undesirable species will hamper efforts to develop and maintain a suitable sport fishery. To overcome this problem, an effective barrier or water filtering system that will prevent passage of fish is essential and must be included in the project design.

April 8, 1977

3. No mitigation has been offered for the loss of 8 miles of river, tailwater, and dredge cut fishery. The construction of boat docks and ramps, access roads and sanitary facilities at the dredge cuts and rereg dam cannot be considered mitigation for the fishery loss. The loss of the existing tailwater fishery for sauger, walleye, and other species may partially be alleviated by possible concentrations of these species below the reregulation dam, but it is extremely doubtful lake trout will find conditions suitable for their existence. We therefore recommend that backwater, pool areas be created below the rereg structure to serve as resting areas for fish. These areas would help to attract fish and make them available to anglers throughout the year; otherwise, fishing opportunities may be limited to seasonal periods of short duration during upstream migration. In addition, we request mitigation in the form of isolating a 60-surface-acre segment (Nelson dredge cut) of the lower dredge cuts for fishery management.
4. In an effort to offset fishery losses projected for 8 miles of river, we request that the Corps provide fish hatchery and rearing pond facilities plus annual operational maintenance costs to compensate losses of walleye, northern pike, lake trout and paddlefish. Intensive stocking of these species will be required in the isolated segments of the dredge cuts, and increased fish stocking capabilities are needed for Fort Peck Reservoir and nearby waters as mitigation for damage to 8 river miles in the rereg pool.

This is specifically not intended to imply we are requesting a fish hatchery at the Fort Peck site. Hatchery and rearing facilities must be located and designed with consideration of water supply, water quality and total energy requirements of such a facility and fish distribution requirements.

5. Duck Creek Waterfowl Habitat: At the maximum pool elevation of 2039 and with the wide fluctuation of water level up to this elevation, there will be substantial bank erosion in the shoreline area between Duck Creek and the rereg pool. This eventually will destroy the key hunting area for the mallard population that winters in Duck Creek. As the pool elevation fluctuates, colder water will be periodically backed up into Duck Creek. The warm-water environment that makes this location an important wintering and hunting area for mallards will be eliminated. The integrity of this critical wintering area must be retained.
6. Terrestrial Habitat Loss: The loss of approximately 200 acres of woodland, shrub-grass and savannah habitat will have a significant impact on the game and nongame species dependent on those types. The two game species that will be most adversely affected are white-tailed deer and pheasants. In addition, the accelerated reduction in size of Scout and Duck Islands will proportionately affect the

April 8, 1977

most preferred nesting habitat of the Canada goose. These two islands are probably the key to maintaining a breeding population of geese, which has only in recent years gained a foothold in the area.

These losses, in reality, cannot be mitigated. Acquisition of habitat types of key importance to white-tailed deer and pheasants should be the first consideration. For whitetails, this is the bottomland hardwood type, having a dense overstory of cottonwoods and other tree species and an understory of various shrubs. For pheasants, the more open shrub-grass and savannah types are preferred. Habitat values in these two types should be enhanced by managing specifically for wildlife production. It is recommended that provisions be made for acquisition of wildlife areas on either the Missouri or Milk River floodplains.

7. The loss of the island nesting habitat for Canada geese cannot be mitigated. Compensation for these losses must be the creation of waterfowl (particularly Canada goose) habitat capable of sustaining a comparable level of production.
8. We request that the above fish and wildlife mitigation measures be included in the original funding for this project. Experience has shown us that unless fish and wildlife are an original project purpose, mitigation and compensation are rarely accomplished in a timely manner - if at all.

BANK PROTECTION WORK - FORT PECK TO GARRISON

From the EIS, the open river distance from Fort Peck to Garrison is about 190 miles (II-4). Erosion of the island banks and valley lands is now occurring at the rate of about 1 acre per river mile per year in this stretch (II-5). The estimated future losses of river valley high bank lands in this area are about two-thirds of an acre per mile per year below (II-7). Bank stabilization work on the river below Fort Peck will involve five areas totaling 12,810 feet, affecting just over one-half percent of the river shoreline (IV-18). This bank protection to be completed within 5 years (I-10) will cost about 1.6 million in federal costs (1976 dollars) (I-11) and about \$18,700 in nonfederal costs (I-12). The EIS goes on to say that the "most probable future" is the construction of stabilization works on all the critically eroding open river reaches between Fort Peck Dam and Ponca State Park.

Bank protection is not addressed realistically, and some basic principles of river mechanics have been ignored. The overall treatment of bank erosion has been grossly oversimplified. Protection of isolated banks will merely transfer accelerated erosion to adjoining banks.

Brigadier General Read

April 8, 1977

Five proposed bank protection sites have been identified in Montana below Fort Peck; some have merit, others do not. Conditions that exist at two of these sites are common, and we question the basis on which bank protection sites were selected.

Throughout the report there is a general expression that bank erosion and sediment problems will be solved by various measures. Unfortunately, these methods are described as "innovative and unproven," which is particularly annoying, since we adamantly oppose any scheme to undertake widespread channel tampering.

It seems, in light of this information, that a more practical, logical, and far less expensive alternative at this point in time would be a long-range program to acquire lands being severely eroded or pay the rancher for land lost to erosion.

We hope the above comments will be of use, and thank you for the opportunity to review this statement. If you have any questions, please feel free to call on us.

Sincerely,



Robert F. Wambach
State Fish and Game Director

RFW/JAP/sd

cc: Dick Johnson
Jim Liebelt
Lt. Governor Schwinden

State of Montana
Office of the Governor
Helena 59601

THOMAS L. JUDGE
GOVERNOR

July 30, 1976

Mr. Gus J. Karabatsos
Chief, Planning Division
Department of the Army
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

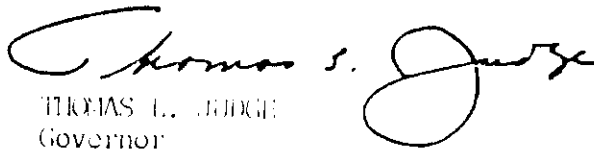
I have been informed by Gary J. Wicks, Director of the Department of Natural Resources and Conservation, of the Corps' new proposal regarding Fort Peck, as stated in your July 22 letter.

The decision made after the Great Falls hearing to propose two generating units and a rerregulation structure is to be commended. The first part of the proposal means that 185 megawatts of additional generating capacity will be made available from an existing facility--a policy this administration has long advocated. The latter should significantly reduce irrigation diversion problems and bank erosion that might have resulted from rapidly fluctuating discharges.

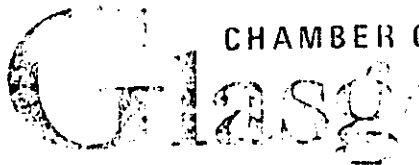
Therefore, assuming that no other major environmental or jurisdictional problems are identified, I join the DNR&C in support of this new proposal and stand ready to assist in expediting the studies and other steps necessary to move it to the implementation stage.

Best regards.

Sincerely,


THOMAS L. JUDGE
Governor

cc: Honorable Mike Mansfield
Honorable Lee Metcalf
Honorable John Melcher
Mr. Gary J. Wicks, DNR&C



CHAMBER OF COMMERCE & AGRICULTURE, INC.
AREA

BOX 832 GLASGOW, MONTANA 59230

TELEPHONE (406) 278-2222

March 22, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Dept. of the Army
Missouri River Div., Corps of Eng.
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

RE: Review of Draft Environmental Impact Statement(DEIS) for the
Missouri River - Fort Peck Project.

Dear Mr. Karabatsos:

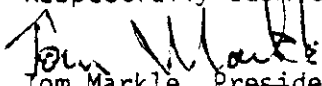
Having reviewed the DEIS, we take this means to express our continued support for additional power generating capability at the Fort Peck Project.

However, the planned re-regulatory aspect of the draft does present some possible negative environmental effects that need to be offset by a positive approach.

We are referring to the fishing in particular and the recreation in general below the power house location. A positive step would be to include, as a part of the initial Fort Peck project addition, a fish hatchery and adequate rearing ponds. Also, access roads in the effected area could serve both the general public and maintenance and/or inspection routes for Project employees.

When practical we strongly encourage measures be instituted, before initial construction begins, that will insure enhancement of the effected environmental areas.

Respectfully submitted,


Tom Markle, President
GLASGOW AREA CHAMBER OF COMMERCE
& AGRICULTURE

Appendix 2
76

ACCREDITED

HIGH PLAINS COUNCIL FOR DISTRICT ONE

DANIELS COUNTY
PHILLIPS COUNTY
ROOSEVELT COUNTY
SHERIDAN COUNTY
VALLEY COUNTY

Doug Smith
Energy Coordinator
836 2nd Ave. S.
Glasgow, MT 59230

15 March 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Department of the Army
P.O. Box 103
Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

I am writing to comment on your Draft Environmental Impact Statement for the Missouri River. I am concerned mainly with the statement as it applies to Fort Peck, however, I think my comments will be applicable to the other locations as well.

In reading your statement I noticed that you did not address the effects that the projects would have on the nearby communities; specifically in this area, Fort Peck, Glasgow, Nashua and Wolf Point. I feel that you should mention the size and composition of the expected work force required during construction and the length of time required for construction. Also what impacts this labor force will have on the local community facilities, public services, housing and retail services. Sites and details of any construction camps should be included. The number of people that may be hired locally as part of the labor force as well as the amount of money they might be expected to add to the local economy should be mentioned.

Another aspect that I'm interested in is the effect that the added electrical generation will have on the 300,000 acre-feet of water allocated for industrial water marketing from Fort Peck Lake. In the event that there is not enough water for all uses, will priorities be set as to which use is more important? What is the amount of surplus water available annually that can be used for peak power generation and will there be periods when there won't be any water available for additional power generation? I think your final statement should address these questions.

Another comment I have does not relate to the contents of the impact statement but to the location of the hearings on the impact statement and proposed project. I feel very strongly that the hearings should be held in the area that will be affected, namely Glasgow, and not 270 miles away in Great Falls.

Sincerely,

Doug Smith

March 22, 1977

General Read
Missouri River Division
Corps of Engineers
Omaha, Nebraska 68102

Dear General Read:

We the Fort Peck Businessmen want to go on record to support additional electrical generation at Fort Peck. We would like to see the Montana Department of Fish and Game be compensated for the fishing and the fish that would be lost by this project. Such as fish hatchery and rearing ponds.

Your personal attention would sincerely be appreciated.

Sincerely,



Harold J. Schultz
President of the
Fort Peck Businessmen

Valley County Development Council

Courthouse Annex, Room 2
Post Office Box 832
Glasgow, Montana 59230
Tel: (406) 228-9389

April 6, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Department of the Army
Missouri River Division, Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska

Dear Mr. Karabatsos:

Enclosed please find the comments of our organization as regards the Corps of Engineers Draft Environmental Statement on the Missouri River umbrella study for increased electrical power generation on the system. You will note it deals primarily with the Fort Peck portion of the study.

Not included in the comments but of great importance, is that this increased electrical capacity should be especially designed for Montana markets first. The projected needs are adequate to absorb this.

It must be remembered that the benefits accruing from the construction of the Fort Peck Dam and storage reservoir, have fallen primarily to the downstream states. There was considerable sacrifice of good Montana lands in the project and an additional eight miles of river would be a portion of this proposal.

In phone contact with your Omaha Office, I was informed that the deadline for receiving comments had been moved to April 11, 1977.

Sincerely,



Manson H. Bailey, Jr.
Executive Director

STATEMENT OF THE VALLEY COUNTY DEVELOPMENT COUNCIL, MONTANA
RELATIVE TO THE U.S. CORPS. OF ENGINEERS
DRAFT ENVIRONMENTAL IMPACT STATEMENT ON
THE MAIN STEM MISSOURI RIVER (UMBRELLA) STUDY
DATED FEBRUARY 7, 1977

TO: The Division Engineer, Missouri River Division, Corps of Engineers,
P.O. Box 103, Downtown Station, Omaha, Nebraska. ATTENTION: Gus J.
Karabatos, Chief, Planning Division.

LOCATION: Valley County, Montana is bordered on the south by the Fort
Peck Lake, Dam and the Missouri River. The confluence of the Milk
River with the Missouri River, is some 9 river miles below the Dam.
Fort Peck Dam is 17 miles southeast of Glasgow, the county seat.

BY: The Valley County Development Council, (VCDC), is an entity of County
government and is designated by the Board of County Commissioners as
the Overall Economic Development Program Committee. The County is a
designated redevelopment area by the U.S. Economic Development
Administration.

BACKGROUND: This organization presented testimony at a federal hearing
in Billings, Montana, March 31, 1971, favoring a study of the Missouri
River system as to the expansion and conditions of additional Hydro-
electrical generation on the system. In June of 1976, after a review
of the preliminary findings, this council presented testimony at the
Great Falls, Montana hearing, favoring additional generation at the
Fort Peck Dam Project, which is of local interest and which this
statement is directed to.

ENVIRONMENTAL STATEMENT REPLY: The Valley County Development Council, in
action during a regularly scheduled meeting, voted in favor of devel-
opment of additional hydro-electrical power generation at the Fort
Peck Dam Project. In consideration is the presently operating power-
houses No. 1 and No. 2, with five generators on line with an accom-
panying control and distribution system and the availability of
additional, in place, water controlled diversion tunnels, all of
which would have a considerable monetary saving over all new
electrical energy and especially the role of Hydro-Electrical energy
to meet the peaking load periods of the day, which also brings a
premium price.

AREAS OF CONSIDERATION:

- (1) **Re-regulatory Dam and Control Gate:** In both previous VCDC statements
it was recommended that in the planning of such a project, that a re-
regulatory dam be constructed on the river, below the generating
units. Due to present downstream river bank erosion, it is felt
the greater role hydro-power is and will have in meeting peaking
power needs of electricity, which would greatly increase the fluc-
tuations and amount of discharge during these periods, the re-regulatory
dam and control gates would provide a more constant flow of the

stream. This is covered in the environmental statement. It is not shown or mentioned the type of gate control at the re-regulatory site. It would be desired that it would not be a fish barrier, that it would pass fish.

Eight Mile Regulatory Pond - In many instances connected with such projects, there are some losses. In this project, it is mainly within the regulation pond. With the wide variance in width and depth, it would have an adverse effect on the fishery, and other wildlife habitat within the area. These again are covered in the report. It is the opinion of a broad representative group, who met to discuss the project, that in addition to the mitigations mentioned, that the following be proposed.

- (2) Control Gate Structure Into the Dredgecut Area (Page 1-15): This location is at Highway #249 bridge. The design should insure a fish filter that would not allow fish movement in or out of the 643 acre dredgecut, managed fishery area.
- (3) Rehabilitative Chemicals for Dredgecut Fishery: In order to establish the dredgecut area as a sports fishery, it is requested that adequate chemicals be provided to eradicate the pond of all fish and that it be restocked with adequate numbers of adaptable and desirable type fish.
- (4) Fish Stocking: In addition to the dredgecut pond, it is recommended that other areas be stocked with fish mitigation for the 8 miles of river regulation pond.
- (5) Fish Hatchery, Rearing Ponds: It is noted in the study that another project is having consideration of a fish hatchery and fish rearing ponds. With the anticipated need for increased fish stocking here, it is requested that consideration be given to a federally constructed and operated fish hatchery and rearing ponds with this project or adequate numbers be supplied.
- (6) Wintering Mallards on Duck Creek: There is a small fresh water creek, which stays open the year around and is used by a local mallard duck population during the winter. The top anticipated water release elevations of 2039 could cause some bank erosion and siltation in that area. It may be necessary to provide stream bank protection there.
- (7) Farm Irrigation Pump Sites: It was not noticed if consideration was given to any farm irrigation pump sites which might be effected with the installation of the project. Mitigation should include such instances if there are any.
- (8) Funding: It is further requested that the funding for mitigations be a part of the approval and financing of such a project. It is this organizations request that it be notified of future releases pertaining to the Fort Peck portion of the river plan and be listed to receive the Final Environmental Statement.

NORTH DAKOTA STATE PLANNING DIVISION

STATE CAPITOL—FOURTH FLOOR—BISMARCK, NORTH DAKOTA 58505
701 224-2818

March 11, 1977

STATE INTERGOVERNMENTAL CLEARINGHOUSE "LETTER OF COMMENT"
ON PROJECT REVIEW IN CONFORMANCE WITH OMB CIRCULAR NO. A-95

To: Department of the Army - Corps of Engineers

STATE APPLICATION IDENTIFIER: 7702109177

Mr. William E. Read
Brigadiere General, USA
Division Engineer
Department of the Army
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Read:

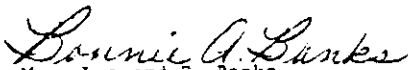
Subject: Draft Environmental Impact Statement by the Department of the Army - Corps of Engineers for the Missouri River - South Dakota, Nebraska, North Dakota, and Montana.

This Draft EIS was received in our office on February 10, 1977.

In the process of the A-95 review, the attached comments were received from the ND Highway Department, ND Forest Service and the Historical Society.

This document and attachments constitute the comment of the State Intergovernmental Clearinghouse, made in compliance with OMB Circular No. A-95. The ND State Intergovernmental Clearinghouse requests the opportunity for complete re-review of applications for renewal or continuation grants or applications not submitted to or acted on by the funding agency within one year after the date of this letter.

Sincerely yours,


Mrs. Leonard E. Banks
Associate Planner

LEB/ds

Attachments

NDSIC FORM B (9/71)

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

PNRS NO.

77-177
Date Received

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Robert Bradley

ND Highway Department

Bismarck, ND 58505

ISSUED

BY: Department of the Army

DATE: February 14, 1977

NAME OF

PROJECT: Draft EIS: Missouri River - South Dakota, Nebraska, North Dakota and Montana

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☒ Comments submitted herewith

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary)

We are pleased that bank protection has been included in the plan for the west bank immediately upstream from the Interstate 94 Missouri River Bridge between Bismarck and Mandan.

On Page IV-8 there is a discussion of harvesting rock for bank stabilization. In the past, harvesting of field rock has had a detrimental impact on roads used to haul rock from fields to construction sites. This impact should be recognized and could be mitigated by Contract Provisions, whereby the contractor would be responsible to maintain

2. Reasons why meeting is desired with applicant: and restore haul roads to their original condition.

Reviewer's

Signature: R.E. Bradley

R.E. Bradley
Chief Engineer

Date: February 23, 1977

Title: _____

Tele: 224-2584

Appendix 2

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NDSIC FORM B (9/71)

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Dr. Robert Johnson

ND Forest Service

Bottineau, ND 58318

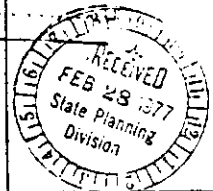
ISSUED

BY: Department of the Army

PNRS NO.

77-177
Date Received

FEB 17 1977



DATE: February 14, 1977

NAME OF

PROJECT: Draft EIS: Missouri River - South Dakota, Nebraska, North Dakota and Montana

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☒ Comments submitted herewith

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary) In a State that ranks 50th in forestry resources, we can ill afford to lose anymore native woodlands. The woodlands along the Missouri River below Garrison Dam are fast disappearing. It is essential that the lost 190 acres be replaced by the acquisition of 285 acres as indicated on page 7 of the tentative recommendations.

2. Reasons why meeting is desired with applicant:

Reviewer's

Signature: Walter P. Pappas

Date: 2-25-77

Title: Deputy State Forester

Tele: 228-7277

NDSIC FORM B (9/71)

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Mr. James Sperry
Historical Society
Bismarck, ND 58505

ISSUED BY: Department of the Army

DATE: February 14, 1977

NAME OF PROJECT: Draft EIS: Missouri River - South Dakota, Nebraska, North Dakota and Montana

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

- ☐ No comment ☐ Meeting desired with applicant
☒ Comments submitted herewith

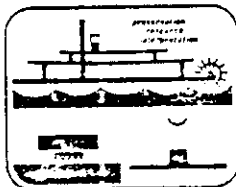
1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary)

*We have extensive, critical comments to submit.
We will need additional time to complete our review, and will submit a detailed account in 15 days (about March 15, 1977).*

2. Reasons why meeting is desired with applicant:

Reviewer's Signature: John L. Erickson Date: Mar 17, 1977
Title: Survey Administrator Tele: 224-2569

FEB 16 1977



State Historical Society

of north dakota

LINCOLN NATIONAL BUILDING LINCOLN NORTH DAKOTA 58504
TELEPHONE 337-2244

March 11, 1977

Gus J. Karabatsos
Chief, Planning Division
Department of the Army
Missouri River Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

We have had an opportunity to review the contents of the draft environmental impact statement MISSOURI RIVER, SOUTH DAKOTA, NEBRASKA, NORTH DAKOTA, MONTANA. Our comments are appended to this letter. These comments will be limited to only those aspects of the projects described which directly affect North Dakota, and only those portions of the document which deal with cultural resources. An introductory comment is in order: this document appears to lump together five more-or-less independent actions (bank stabilization, increased hydropower at Fort Peck, increased hydropower at Garrison, increased hydropower at Francis Case, National Wild River status for a downstream reach of the Missouri). We prefer to see full length documents prepared for each of the component segments of the proposed action, and would strongly recommend that the final EIS('s) be in this form.

It is clear from Table I that most of the bank erosion protection sites authorized under the Streambank Erosion Control Demonstration Act, Section 32 of the Water Resources Development Act of 1974 are in the Garrison reach (page I-6). Six have been funded and are proposed for construction during 1977, presumably most of them in North Dakota. We have received no notice of this work to date; no cultural resources inventories are on record. Under Federal regulations the Corps of Engineers, cannot initiate construction until these areas are inventoried, impacts identified, and an approved plan to mitigate adverse impacts agreed to and signed.

Paragraphs 2.35-2.42

The description of the presently-existing cultural environment in the reach from Garrison Dam to Lake Oahe is not sufficiently detailed. Someone unfamiliar with the area would be unable to make an objective assessment of

Gus J. Karabatsos
Page 2
March 11, 1977

the cultural values. Recent syntheses apparently have not been consulted, and only the most generalized statements are provided, an approach which is inadequate. Section 2.40 (p. 11-15) is in error. A National Register nomination is being prepared for submission for an archeological site, 32ME13 (High Butte). The site lies well above the Missouri and therefore will not be physically affected by the proposed action, although visual degradation will be increased by the new pumphouse structures and construction scars. Further, the Knife River Indian Villages National Historic Site lies just downstream from Garrison Dam. Detrimental effects to this especially significant area resulting from daily massive water-level fluctuations are not discussed. The integrity of the park area must be maintained. Therefore, adverse and potentially adverse impacts must be recognized, considered and adequately mitigated before a final clearance could be issued by this office.

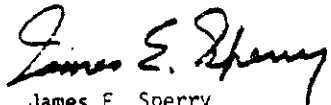
The sentence: "At areas where probability of proposed project effects on cultural resources is very low (such as channel-side bank slumping in low lying river deposits) reconnaissance was by-passed in favor of more cost-effective post authorization surveys." is very troublesome. First, we have no records indicating that all areas of high site probability have been surveyed; second, while we are aware of the values of cost-effectiveness, we are not convinced that the protection and conservation of cultural resources before the fact is any less cost-effective than salvage and mitigation after the fact. Furthermore, we have no assurance that, should the project be undertaken, sufficient time and resources would be allotted for survey assessment, and mitigation of significant cultural resources in affected areas. The assertion in paragraph 2.39 (page 11-15) that: "... proposed actions described in Section I are anticipated to have rather minor effects upon cultural resources" is not appropriate in the absence of an adequate description of the presently existing environment. Ultimately, such a description must be based on in-the-field survey, and we are extremely concerned that this action will be postponed until it is too late to be accomplished properly or for the results to be adequately effective. Until proof exists to the contrary, current knowledge of the area and professional consideration forces us to assume that there are significant (i.e. National Register merit) cultural resources in the project areas which will suffer severe adverse affects due to the projects described.

The responsibility to identify cultural resources on the part of the Corps of Engineers appears to be acknowledged in paragraph 4.61 (page 11-22). The "survey" discussed should be exhaustively thorough. We suggest that the North Dakota State Historic Preservation Officer's office be given the opportunity to comment both on the Scope of Work before it is generally released for bid, and on the survey design of the successful bidder.

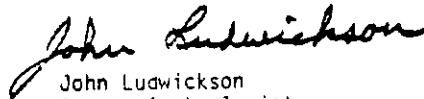
Gus J. Karabatsos
Page 2
March 11, 1977

Finally, we feel that the loss of any cultural remains because of the proposed actions should be acknowledged as an irreversible and irretrievable commitment of the resource.

Sincerely yours,



James E. Sperry
State Historic Preservation Officer
(North Dakota)



John Ludwickson
Survey Archeologist

JL/je
cc: Dr. Stanley Ahler

The University of North Dakota

GRAND FORKS 58202

DEPARTMENT OF ANTHROPOLOGY AND ARCHAEOLOGY

TELEPHONE: (701) 777-3009

Monday, March 7, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Missouri River Division
Army Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

This letter is in comment on a document entitled "Draft Environmental Statement, Missouri River, South Dakota, Nebraska, North Dakota, and Montana", issued by your office February 7, 1977. That document deals with proposed bank protection plans, additional hydroelectric power plants, Recreational River development, and fish rearing ponds, all in the states mentioned in the document title.

As an archeologist interested in the protection and preservation of cultural resources in the proposed project areas, I have several major observations concerning the general perspective of the Corps on cultural resources. As stated in several places (paragraphs 1.45, 4.55, 4.61, 5.02), the Corps has not conducted cultural resource inventories and evaluations within the proposed project areas, but intends to conduct such studies during the post-authorization phases of each project. Where significant cultural resources are found to be potentially adversely affected, the Corps will either provide protection and preservation from destruction, or will conduct excavations necessary to salvage and preserve all important cultural resource data. It is clear from this proposed plan that the Corps does not consider the cultural resources to be an important part of the cultural and natural environment, at least not worthy of consideration during planning stages of Corps projects. This perspective and proposed plan of action is clearly not in compliance with the National Historic Preservation Act of 1966, Executive Order 11593, or the Army Technical Manual for Historic Preservation Administrative Procedures (TM-5-801-1) which require the Army (1) to locate, inventory and nominate National Register quality historic properties under its jurisdiction, (2) to determine the effect on such properties of any proposed action prior to the approval of funds for conducting such actions, and (3) to exercise caution prior to the completion of historic sites inventories and evaluations to ensure that any federally owned property which might qualify for National Register nomination is not inadvertently demolished or substantially altered.

Mr. Karabatsos
March 7, 1977

The document itself acknowledges that the Corps is not in compliance with relevant law and policy (paragraph 2.42). While that paragraph suggests that there is an existing and ongoing program for cultural resource inventory and evaluation on Corps property, nowhere are the details of such a program identified or explained, particularly in relation to the proposed actions. An accurate picture of the Corps' perspective and plans for such inventory is provided in the same paragraph which suggests that while such surveys are required by Corps policy, such pre-authorization surveys are not considered to be cost-effective, and that post-authorization surveys will be conducted. Thus, there appears to be no existing plan for cultural resource inventory on Corps controlled land, nor is there any attempt to determine the effects of proposed action on such resources prior to seeking authorization for such actions. In effect, the Corps apparently wishes to deal with impacts on cultural resources as an engineering or construction problem, a minor detail which can be ignored until some later stage in the project.

While the proposed action is clearly at odds with existing cultural resource laws and national Corps policy, when taken at face value, the plan may appear to some readers to have economic merit. Such is not the case. It is worthwhile to consider a hypothetical example of the economic impact of such a proposed plan of action in relation to cultural resources. For example, let us assume that a post-authorization survey reveals a four acre, prehistoric earthlodge village, located in a project area that is scheduled to be totally destroyed (for example, in the 190 acres of Missouri River valley that will be washed away downstream from the proposed Garrison Dam modifications). The discovery of such a site is not unlikely considering the high density of such villages in the Missouri River trench (cf. D.J. Lehmer, Introduction to Middle Missouri Archeology, National Park Service 1971; T.J. Adamczyk Archeological Inventory, Missouri River Reach between Fort Benton, Montana and Sioux City, Iowa. Report for the U.S. Army COE, Omaha District 1975). In the post-authorization stage, it is unlikely that preservation of such a site can be seriously considered without totally altering project plans, so a decision to salvage all important archeological data from the site will be the likely decision. An important question, which is not addressed in this document, is what will be the cost to the public for such mitigative archeological research? Based on current cost figures for archeological research in Plains Village archeological sites, such an archeological salvage undertaking will be very complex, time-consuming, and expensive. It is estimated that at least 12 months of field work with a crew of forty persons would be required to excavate approximately 50% of the site (estimate cost \$400,000). For every hour of labor expended in excavation it is estimated that four additional hours of laboratory time will be required (estimated cost \$1.6 million). An estimated 20 million bits of culturally relevant archeological data will be recovered, requiring computer processing and a number of specialized studies involving multiple dating procedures, x-ray diffraction, neutron activation, etc. (estimated cost \$400,000). Finally the material remains and resulting data would require storage and curation for an estimated 100 years (estimated cost \$200,000). Thus, the total mitigative cost for even one moderate sized, national register quality site would total an estimated \$2.6 million, and from the perspective of a professional archeologist generally familiar with most of the proposed project areas, it is highly likely that numerous national register quality sites will be located if and when an on-the-ground search is conducted.

Mr. Karabatsos
March 7, 1977

The point is, that from the perspective of either the existing cultural resource legislation and National Corps policy, or from the apparent perspective of the Missouri River Division of the Corps, cultural resource inventories and evaluations are absolutely necessary prior to project authorization in order to (a) determine the impact of proposed Corps action on important and irreplaceable cultural resources in the study area, and (b) determine the costs and benefits of alternative mitigative or preservation actions to be taken in regard to such cultural resources. In summary, I would suggest the following:

1. That the Corps conduct cultural resource inventory and evaluation studies involving on-the-ground searches in the proposed project areas by professional archeologists, and that the results of these studies be included in the final environmental statements on the proposed projects,
2. that the Corps include the costs of mitigating the adverse impact of proposed actions on the important cultural resources in the final environmental statement on the proposed projects,
3. that the Corps proceed immediately with nomination of qualified sites on Corps controlled properties to the National Register of Historic Places, and
4. that the Corps implement a district or system-wide plan for inventory, evaluation, preservation, protection and management of cultural resources on all existing Corps controlled properties.

I have one further area of comment concerning the general benefits derived from proposed projects. I wish to point out that none of the increased hydropower projects (Fort Peck, Garrison, and Gregory County) will result in any net increase in the electrical energy produced from the Missouri Mainstem system. At both Fort Peck and Garrison, current energy production is limited by the maximum water flow through the dam system, and at both installations, about 99 percent of the water released downstream is currently used to produce electrical power (Source: Draft Environmental Statement, Missouri River Mainstem System. September 1976, Omaha District, U.S. Army Corps of Engineers, Paragraph 1.55). Therefore, the placement of additional generating units within the system cannot result in an overall increase in electrical power produced, since maximal energy production is limited by river flow, and since maximal river flow is already being channelled through the hydroelectric system. There is simply no more water available to produce additional electric power. The only effect of additional generating units will be the capability to produce a higher peak power during one part of the day, but this increased power during one part of the day will be balanced by an equal loss of existing power generation levels during some other part of the day (see Figure 8). Net power production will remain precisely where it is with the existing system.

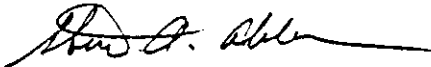
At the proposed Gregory County pumped storage facility, the net energy increase will also be zero. In fact, the operation of the proposed facility will result in a loss of electrical energy by the amount required to overcome friction losses within the system. According to the laws of thermodynamics, the output from the system must always equal the input into the system. In the case of the proposed pumped storage facility, the amount

Mr. Karabatsos
March 7, 1977

of electrical energy required to pump water to the upland storage bay (the input) must equal the sum of friction loss of water entering the system, friction losses in the pumps, friction losses of water evacuating the system, and the total energy output from the system (the total of these is the output). Thus, electrical energy input into the system must equal electrical energy output plus a number of friction losses. Since the operation can never be frictionless, output energy will always fall below input energy requirements, and the system will always operate at a net energy loss. To state that the worth of the power output will be \$51,029,000 while the power input or pumping cost will be only \$14,580,000 (Table 17 of the document) is hardly credible in light of the above argument, or at least requires further explanation. Given the fact that no additional energy will be produced at any of the proposed hydropower projects, a computation of any cost benefit ratio greater than 0.0 appears difficult to support.

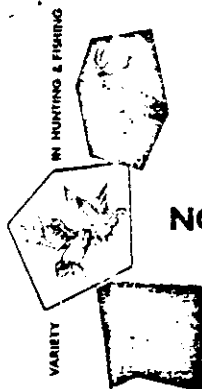
Thank you for the opportunity to comment on the stated document.

Sincerely yours,



Stanley A. Ahler
Research Archeologist

cc: James E. Sperry, SHPO/North Dakota
John J. Little, SHPO/South Dakota
Richard G. Leverty, DAEN-CWP-P



NORTH DAKOTA GAME AND FISH DEPARTMENT

PHONE - 224-2180

BISMARCK, N. DAK.

58505

March 22, 1977

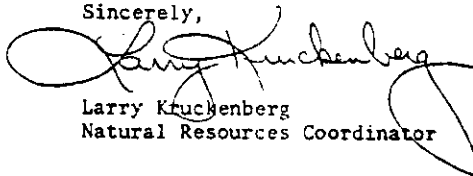
Mr. William E. Read
Brigadier General, USA
Division Engineer
Missouri River Division, Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Read:

Attached find the North Dakota Game and Fish Department's comments on the Draft Environmental Statement, Missouri River, South Dakota, Nebraska, North Dakota, Montana and Appendix I - Technical Report for the same document. We ask that comments from both reports be included in the final environmental impact statement.

We appreciated having the opportunity to review this proposal.

Sincerely,


Larry Kruckenberg
Natural Resources Coordinator

LK:fr

cc: Fish and Wildlife Service (Cernohous)
Riverdale District Office (Enyeart)
Williston District Office (Renhowe)
District Warden, Washburn (Chrest)

RUSSELL W. STUART
COMMISSIONER

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C. R. GRONDAHL
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R. L. MORGAN
LEADER, HABITAT DEVELOPMENT

WILBUR BOLDT
DEPUTY COMMISSIONER

PERSHING CARLSON
CHIEF, PUBLIC RELATIONS DIVISION

Appendix 2
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COMMENTS BY THE
NORTH DAKOTA GAME AND FISH DEPARTMENT
ON THE
DRAFT ENVIRONMENTAL STATEMENT

Missouri River
South Dakota, Nebraska, North Dakota, Montana
Dated February, 1977

Page V - Hydro-power Garrison

This paragraph over simplifies and understates impacts on natural resources associated with the advocated use of the river valley. Some fishes will be eliminated. Recreational facilities which have been developed at considerable expense will be lost or relocated, with no assurance of like use at the relocated site. The amount of hardship placed on private, agricultural, industrial and community water pump operations isn't stated.

Page V - Alternatives

The alternatives in our estimation are inadequately stated in this section.

Paragraph 1.02

Instead of stating "several" recreation access points will be provided, the specific number and location should be described.

Paragraph 1.03

At some point, specific treatment proposals for each site will have to be spelled out - why not in this draft environmental statement?

Paragraph 1.16

This procedure would appear to be unacceptable to cooperating agencies. Under this procedure, we could well encounter some drastic changes in proposals.

We should know exactly what we are commenting on and Congress should know exactly what works are being provided for in the appropriation. We believe specific sites must have been investigated in order to come up with cost figures given in Table 2, Page I-11. If specifics were not involved, what was the basis for these figures?

Paragraph 1.19

This paragraph should be rewritten. It is poorly stated and confusing in its present form.

Paragraphs 1.34 and 1.35

In addition to referring to graphs and figures, the draft statement should state exactly what is going to happen. We do not agree with the conclusions drawn in this section. What is "unduly severe"? It appears the conclusions stated in these two paragraphs are based on very limited data gathered over a very short period of time.

Paragraph 1.36

Will this proposal limit future expansion of the hatchery? Will it not eliminate establishment of "fish runs" for such species as coho salmon, which in recent years have been documented returning to hatchery rearing ponds from the Missouri River below Garrison Dam?

This proposal will also adversely affect deer use on the Riverdale Game Management Area by eliminating preferred willow habitat west and south-west of the hatchery. Deer use in this area is as high as 100 head during certain times of the year.

Paragraph 1.37

Where will the new facility be located and what assurance do we have of comparable public use at the relocated site?

Paragraph 1.38

What assurance is there that this is the extent of the loss and that it is a one time loss? Paragraph 2.11 indicates that even with present releases, erosion losses below Garrison total 75 acres annually.

This amount of mitigation (285 acres) may be inadequate. What are the mitigation proposals for loss of the sport fishery and other recreational opportunities caused by the addition to and change in use of the Garrison power plant?

Paragraph 2.01

Are these gains designed to offset losses incurred by this proposal on other stretches of the river and mainstem reservoirs?

Paragraph 2.02

From the headwaters of Lake Sakakawea to Gavins Point Dam, 620 of 757 miles (82 percent) of the Missouri River valley has been eliminated by the mainstem reservoir system. North Dakota has only 87 miles of open river remaining yet this proposal could adversely affect a sizeable portion of this last remaining reach of the Missouri River in this State.

Paragraph 2.13

If this depletion is an ongoing situation, is it not questionable if a sufficient water supply is available to support or justify adding additional units?

Paragraph 2.14

According to this paragraph, reduction of 80 percent of bank erosion is already authorized by Congress. Do the proposals stated in this document allow for corrective measures on the remaining 20 percent?

Paragraph 2.20

The Missouri and its mainstem reservoirs were typically warm water sport fishing areas. Considerable progress has been made in developing cold water sport fisheries. Cold water species are important to the reservoirs and their respective tailrace fishery. Seven cold water species are present in Sakakawea.

Of the 39 warm water species in Lake Sakakawea alone, are we to believe that only the mountain sucker is native to the Missouri system?

We have no record of quillback carpsucker or pearl dace being taken in Lake Sakakawea. River carpsucker are common. Rainbow smelt are not limited to Sakakawea, but may be found in many parts of the Missouri system in South Dakota. Forty-six (46) species are found in Lake Sakakawea and 45 species are found in the river reach below Garrison Dam.

Paragraph 2.21

Paddlefish are well known throughout the Missouri River system.

Paddlefish may be on the decline in some areas, but they are able to live throughout the Missouri River system.

Paddlefish reproduction is not limited to the river reach between Fort Randall and Lewis & Clark reservoir and below Gavins Point Dam. Reproduction does occur above Lake Sakakawea and could occur in all reaches of the Missouri system.

Paragraph 2.22

The spawning of walleye and sauger is also significant below Garrison Dam.

North Dakota did not stock coho salmon in the Garrison tailrace expecting natural reproduction. Coho were stocked hoping to develop a spawning run between Lake Oahe and the Garrison National Fish Hatchery. The run itself would produce a seasonal river fishery. Coho salmon play an important role in our tailrace fishery.

Northern pike were and still are an important part of North Dakota's reservoir fishery. They can hardly be classed as an insignificant part of this fishery. Spawning habitat may be limited in some years, but natural reproduction does occur in other years. Inadequate forage is not a limiting factor.

Paragraph 2.23

Movement of fish through dams on the mainstem system is very significant. Since 1970, rainbow smelt have become established in most areas below Garrison Dam via plants made in Lake Sakakawea. Lake trout, lake whitefish, coho salmon and smallmouth bass were all stocked in Lake Sakakawea and have been recovered in the Garrison Dam tailrace. Corps of Engineers employees report that large numbers of salmonids and other game species are recovered from the power house each time a generator is shut down for repair.

Paragraph 2.24

North Dakota lists 22 species in the Missouri as rare in relative abundance. Many of these species could be considered, at best, threatened in North Dakota waters.

Paragraph 2.25

The species list should be expanded to include other species such as bobcat, grasshopper mouse, fox squirrel, etc.

This paragraph is also misleading in that it implies that the white-tailed deer is not an upland species. The distribution of whitetails in North Dakota is evidence that this statement is incorrect.

Paragraph 2.26

The fox squirrel is the predominant squirrel species between Garrison Dam and Lake Oahe. Few, if any, gray squirrels are found in this area. The gray squirrel is primarily an inhabitant of eastern North Dakota.

Paragraph 2.29

Reference is made to the northern bald eagle, golden eagle, and American eagle. The latter is unknown to us. What is the scientific name of this bird?

It should also be noted that the only recent records (1975 and 1976) of nesting bald eagles in North Dakota occurred immediately adjacent to the Missouri River within 20 miles downstream of the Garrison Dam power house.

Paragraph 2.30

The Canada goose is no longer an uncommon nester in North Dakota, particularly around Lake Sakakawea where there is an expanding breeding population numbering in excess of 2,000 birds.

Paragraph 2.31

We are not in agreement with the statement, "Typically the flood plain habitat is not the State's better upland game range". In North Dakota, at least, the flood plain habitat, what little remains, is some of our best upland game habitat, particularly for ring-necked pheasants. Presently, the Missouri River floodplain supports the highest density of pheasants found anywhere in North Dakota.

The floodplain is also preferred wintering habitat for such upland species as sharp-tailed grouse.

Paragraph 2.32

It should be noted that in North Dakota, the Missouri River is a transition zone for eastern and western species of songbirds. Thus, there is a greater diversity of species found here than in most areas of the State.

Below Garrison Dam, there is considerable amount of use by turkey vultures. Although no nest searches have been conducted, it is generally agreed that nesting occurs along the cliffs adjacent to the river, immediately downstream from the power house.

Paragraph 2.33

Soft-shelled turtles have been taken in test netting operations between Garrison Dam and Lake Oahe.

Page IV-1 - Impacts Identified-Bank Protection

Where are adverse impacts of wildlife habitat and recreational activities listed?

Page IV-2 - Hydro-power-Garrison

The list of impacts should be expanded. The present list is totally inadequate as regards the effect on fish and wildlife species. It should include, among other items, the severe reduction of fish movement and reproduction and the loss of an important recreation area below the dam.

Paragraph 4.01

This paragraph contradicts paragraph 2.31 and supports our conclusion that this flood plain habitat is very important to a variety of species.

Paragraph 4.08

The Game and Fish Department's choice is "no action", other than reasonable adjustments in patterns of use of the present facility. At the time the Department stated opposition to the re-regulation proposal, we were not aware that additional units would result in the extreme fluctuations of power house discharge rates from 70,000 cfs to zero. Both of these proposals, the re-regulation structure and the addition of three generating units with the resulting extreme fluctuations, are unacceptable to the Department.

Paragraph 4.11

Why does all the effort in North Dakota appear to be aimed at destroying existing fisheries and recreation facilities with no remedies of losses proposed?

Paragraph 4.29

The rhetoric concerning the "tide induced changes of the seashore" appears to be a weak attempt to downplay losses incurred by the proposal of adding addition units.

What will be the effect of this action during periods of extremely cold weather and subzero temperatures? Won't this fluctuation of discharges further erode the riverbed and banks?

Paragraph 4.30

We consider any additional loss of flood plain habitat to be significant because the overwhelming majority of this valuable wildlife habitat has been lost to other mainstem projects in North Dakota.

As mentioned earlier in our comments, bald eagles do nest immediately adjacent to the river, within 20 miles of the power house at Garrison Dam. Peaking power releases could eliminate suitable nesting sites along the river. Bald eagles also winter below Garrison Dam. It should also be pointed out that the northern bald eagle is currently under consideration as a possible addition to the Federal rare and endangered species list.

Paragraph 4.31

Again, a major impact and loss has been identified, yet no corrective or mitigation measures are proposed.

Paragraph 4.32

The "pike hole" area is not the only intensively fished area. The first 2.5 miles below the dam including the tailrace and "pike hole" receive considerable fishing pressure. The mouth of the Knife River and the mouth of the Heart River also qualify. Lack of public access prevents other areas from being fished more heavily.

Paragraph 4.34

What is the 50-year value of this loss? Mitigation should be calculated on a dollar for dollar basis.

Paragraph 4.35

If the power plant is operated as proposed, wouldn't the reduction in the recreational use be greater than 60 percent? What is the basis for the 60 percent figure?

Paragraph 4.36

The water intake problems will increase because the number of sites are increasing. This will be even more accute in the future. Who will pay for the necessary modifications at pumping sites? How much water will be available at zero discharge?

Paragraph 4.30

Woodland will likely be cleared for irrigation or pasture use. Is protection of 8 percent of the bankline sufficient to do the job?

Are specific figures available on how much delta build-up will be reduced on Lake Oahe headwaters if these 21 sites are constructed?

Paragraph 4.60

The change in habitat will preclude use by certain species currently using the area, thus it is open for question whether or not the changed habitat type will be above average. Furthermore, the increased wetland acreage will curtail accessability for public use.

Paragraph 4.61

Another recognition of an effect or problem, but what is the solution and what are the costs?

Paragraphs 4.65 & 4.66

We are expected to analyze the effects of the project, yet complete information on a vital part of this proposal is lacking. The project will be authorized and underway before we have all the information. This draft statement should cover the complete project and effects. Impact statements should not be issued separately for various phases of the project.

Paragraph 5.01

We have already seen an increase in pasturing and feedlots. These activities have an undesirable effect on wildlife habitat and will be accelerated with bank stabilization.

Paragraph 5.05

Will not this fluctuating and de-watering add to the riverbed and bank erosion problem? All adverse effects could be avoided or at least lessened by using present plant facilities and reasonable discharge patterns.

It should be noted that these are Corps of Engineers proposals, not those of the North Dakota Game and Fish Department or the U.S. Fish and Wildlife Service. We will not accept the responsibility for this proposal.

Paragraph 5.08

This should not be construed to mean that these adverse effects will not occur.

Paragraph 5.09

The effect on tree growth downstream from Garrison did not show up until the dam and power house had been in operation for a number of years. The 1975 situation only lasted for several months and is an insufficient period of time on which to base judgment of long term effects.

Paragraph 5.10

Bank structures themselves may not have this effect, but extreme manipulation of discharge and water flows may.

Paragraph 6.05

North Dakota interests were very emphatic about exceeding the 1850' level on Lake Sakakawea in future years. They urged better monitoring of the snow pack and better planning to avoid a like situation from reoccurring.

Paragraph 6.12

What do annual losses to other resources and uses total? Might they not exceed benefits gained from additional units, especially when the relatively short life of the proposed benefits from additional units is considered?

Paragraph 6.13

Congress may have removed from consideration "no action" alternative, but it didn't mandate the maximum extreme either.

Paragraph 6.26

The reason for objecting to Plan B was the loss of 13 miles of river valley, facilities, and recreational opportunities. We certainly object to a loss or degradation of 30 or more miles of river valley. Rejection of Plan B did not mean these agencies opted for Plan C, especially the extreme fluctuation of discharges.

Paragraph 7.01

The Corps should examine changes in land use patterns since Garrison Dam was constructed.

Also, a 5 percent change in a 10-year period equals a 25 percent change in 50 years. This will likely be accelerated with bank stabilization.

Paragraph 8.03

With the majority of the remaining river being affected by this proposal, where does one find "other locations of acceptable habitat"?

Page Ex-I-1

When figuring the cost benefit ratio, why are power house additions evaluated over a 100-year period and the remainder of the works at 50 years? Doesn't this inflate the benefits?

ADDENDUM

Paragraph 1.03

Apparently some of the proposed bank protection structures have been untried. Conjectural whether they will work and/or stay in place. Who is responsible to maintain these structures after they are built?

Also, we should know exactly where these structures are proposed. The North Dakota Game and Fish Department owns three Game Management Areas on the right bank of the Missouri between Garrison Dam and Oahe. All are in Oliver County: Lewis & Clark - 121.0 acres, Smith Grove - 23.7 acres and Square Butte - 38.4 acres. Lewis & Clark and Square Butte are presently being seriously eroded by flows of the Missouri River - five to ten feet of high bank being lost annually. Smith Grove is presently little affected by the river except at the extreme north tip. However, we are concerned that a dike or revetment placed upstream to protect other lands could divert flows to cause cutting at this point.

In-as-much as there is little public land or access along this reach of the river, should not these public lands be given some priority in bank stabilization. Smith Grove was purchased at the request of the North Dakota Izaak Walton League to preserve a unique old-age stand of trees.

Paragraph 2.08

Regarding the intermittent flooding below the Heart River in North Dakota, it does not result from "flood waters moving down the Heart" but has been the direct result of high flows in the Missouri in the summer (60-70 thousand cfs in 1975) and

to ice jams and Missouri flows in the winter, the latest and most severe was December 1976. This winter flooding, in fact, has been an almost annual occurrence since 1969. Similar ice jamming and flooding may develop downstream from Garrison Dam due to peak flows and fluctuations which tear out the ice formed at low water levels.

Paragraph 4.03

Regarding the "initial removal of recently deposited sediment", where will this sediment be redeposited? Will there not be another headwater develop below Garrison Dam in the vicinity where peak flows flatten out and drop sediment? Will the subsequent sandbars not cause a rise or constriction in the river bed with water logging and flooding of adjacent lands?

Paragraph 4.05

The aforementioned three Game Management Areas should specifically be included here as areas to protect.

COMMENTS BY THE
NORTH DAKOTA GAME AND FISH DEPARTMENT
ON THE
APPENDIX 1 - TECHNICAL REPORT

Missouri River
South Dakota, Nebraska, North Dakota, Montana

SECTION E

Paragraph 78

Additional desired recreation has not been provided under existing authority. The mainstem report doesn't recommend any recreational development so when and where is this type of thing going to be done?

Paragraph 79

The proposed additions and power peaking would knock out 15 percent or more of recreational visitation to Lake Sakakawea.

Considerable recreational use of Lake Sakakawea would increase with improved access to reservoir shorelines.

The paragraph is inadequate in regard to recreational resources and effects.

Paragraph 112

Change the sentence to read, "Therefore one or more reservoirs will be selected...". It's time to be positive and make some firm commitments.

Paragraph 115

We believe North Dakota is an exception here. Audubon Refuge makes a contribution, but state efforts are at least equal if not greater. No mention is made of state game management areas in North Dakota. They make a definite contribution both to migratory and resident species. The attached document outlines the Department's research, management, and development work of Corps land around Lake Sakakawea and Lake Audubon since 1955.

Paragraph 143

There is no mention in the draft environmental statement that the pallid sturgeon is an endangered species.

The species list here is more complete than the one in the draft environmental statement.

Paragraph 158

This paragraph should also make reference to the fact that only a small percent of the original river valley remains.

Paragraph 159

White-tailed deer are not confined to the river bottom, although this probably is the best whitetail habitat. Whitetail are more prevalent in most upland areas than mule deer.

Paragraph 160

Fox squirrels are more common on this stretch than are gray squirrels.

Bobcats are more common than lynx.

Paragraph 169

This paragraph probably overstates the situation in the case of waterfowl. Sandbars will be lost to loafing waterfowl during peak migration periods.

Paragraph 180

Again a problem (impact) is recognized but no solution or an inadequate solution is offered. After the project is completed, who is responsible and who pays for the continuing effects?

SECTION C

Paragraphs 19-24

Acts which encourage Corps activities are overemphasized in these paragraphs, yet there is no mention or recognition of those acts which might restrain activities.

Paragraph 38

Could the depletion levels be caused in part by the various uses and treatments on the watershed? Has this aspect been considered?

Paragraph 41

It has been our experience that analyses have a way of becoming recommendations and then finally priorities.

Paragraph 57

The present installations are capable of handling discharge requirements except, "sizeable flood release". Better monitoring and planning would avoid the necessity for spilling water. Therefore, are we to assume the expense of the present proposal is to avoid the off chance of infrequent "spills" without benefit of power generation?

In this and following paragraphs power generation is emphasized, yet the report doesn't adequately consider losses to other resources which might be incurred by the proposed action.

Paragraph 65

If flows below Yellowstone are going to decline 35 to 45 percent, isn't the expense of adding additional units questionable? Might water not be available to operate them before the 50-year period used in the cost-benefit ratio is up?

Paragraph 66

Again we question the wisdom of additional units. The further winter reduction will have an impact on recreational opportunities on both Garrison and Oahe in North Dakota. We will be faced with expansive mud flats and access to the lakes will be an increasing problem.

Paragraph 69

What does this do to water logging areas?

Paragraph 71

The assumption made here that the reduction in lake surface elevation on Lake Sakakawea and Oahe would have little overall effect on public use is questionable. Terrestrial species should benefit as would hunting, however, water oriented activities would suffer.

Is it known where the headwaters of Lake Sakakawea would be if these conditions exist?

The Corps has a history of ignoring recreation development in North Dakota. This is another example.

Paragraph 75

Very definitely some minimum flow criteria should be strived for. There are other benefits besides generation, navigation and industrial uses of water.

Paragraph 77

Again some additional priorities for other uses should be spelled out. Further, is the Corps still talking about 16.3 million acre feet being available above minimum 6,000 cfs at Kansas City or are they talking dry stream?

Paragraph 92

This paragraph is too generalized and even then the conclusion reached is questionable. The Corps should be more specific about location and costs of effects. In spite of its volume this whole report deals in generalities, especially when the discussion deviates from power generation.

Paragraph 95

Are "dollar benefits" necessarily the best indicators?

Instead of asking questions there should be positive statements in regard to preserving benefits associated with instream uses such as recreation and fish and wildlife.

Paragraph 107

The North Dakota Game and Fish Department is also involved in fish population studies on Missouri River mainstem reservoirs. Is the Corps aware of these studies?

Paragraph 109

From its initiation, the mainstem project has had more effect on resident species yet most of the emphasis is on migratory species when it come to development and management. Again there is no mention of the State effort on Lake Sakakawea and Lake Oahe?

Paragraph 121

Exactly what were the legislative limitations placed on Lake Sakakawea and Lake Oahe in regard to stream flows and reservoir levels?

Paragraph 122

The draft environmental statement states this proposal is not feasible yet here it is still under consideration. Which statement is correct?

Paragraph 123

What is "overbank" water?

Paragraph 126

Where is the 29 mile reach of the Yellowstone River referred to in this paragraph?

Paragraph 127

Does the Corps have any data on sediment loads entering these reservoirs and the rate of delta build-up? What is the annual loss of reservoir storage?

Paragraph 141

A problem accentuated by construction of dams. Will not the extremes proposed in discharge rates in the draft environmental statement further add to the problem?

Paragraph 144

Will not the high velocity of discharge during power peaking operations be more erosive than the same volume of water discharged at a lesser velocity over a longer period of time?

Does the Corps have records of a like peaking operation over a long period of time or is the 1975 situation at Garrison Dam the most comparable information available?

Paragraph 146

What assurance do we have this is limited to a one-time loss?

Paragraph 147

Would the situation at Gavins Point apply at other dam sites?

Paragraph 148

Completion reviews either will or will not be made. There should be a positive commitment.

Paragraph 155

The total proposed results in an excess amount of negative environmental quality values for the benefits gained - a total of 7 percent of the projected power needs.

Paragraph 157

The draft environmental statement lists only one feasible site - Gregory County, South Dakota. Why the discrepancy? Where are the locations retained for further consideration?

Paragraph 158

Where is the concern for Lake Sakakawea and Lake Oahe in North Dakota?

Paragraph 161

Again recognition of a problem but where is the Corps suggested solution?

Paragraph 164

It is true this agency and others have commented on the desirability of public access to the open Missouri River reaches, but what has the Corps done about it?

Paragraph 166

It should be stated that the people attending this meeting weren't made aware of the extremes in discharge rates?

SECTION D

Paragraph 7

What has been the reduction in channel capacity below Garrison Dam?

Paragraphs 11-13

Where has this "experience" been gained? Most of the assumption in the draft environmental statement are based on a computer model.

Paragraph 31

Are long-term operation and maintenance costs included for mitigation measures?

Paragraph 32

The draft environmental statement states the cost-benefit ratio for the additional units at Garrison is based on a 100 year life, with no mention that repayment must occur within 50 years.

Paragraph 49

The draft environmental statement states all of these proposals fail the cost-benefit test.

Paragraph 51

How much latitude does the Corps have in manipulating water levels and stream flows? Who is accountable to whom?

Paragraph 57

Another alternative is to place maximum and minimum limits on extreme fluctuations allowable in peaking operations.

Paragraphs 60-61

Is it possible to have a combination of several alternatives?

Paragraph 62

Another alternative is more efficient and wise use of power once it is produced.

Paragraph 66

There are considerably adverse impacts for gaining only an additional 5 percent in generating capacity. Improved management of the system should eliminate a repeat of the 1975 situation.

Paragraph 67

This paragraph does not consider other values.

Paragraph 70

Four sites are retained for further consideration, yet only one site is stated in the draft environmental statement. Where is the pertinent information on the other three sites?

Paragraph 76

Where are Lake Sakakawea recreation and fish and wildlife proposals?

Paragraph 78

The Corps should consider use of portable or semi-portable facilities.

Paragraph 80

At least part of the problem was caused by existing facilities and as such should be a Federal responsibility as the situation now exists.

Paragraph 82

Isn't a similar situation occurring in the Williston area?

Paragraph 111

This delta build-up should be mentioned under Paragraph 82 along with the Oahe situation.

Paragraph 116

The approach used here could well be used on a number of other problems and proposals.

Paragraph 121

The reason given for purchase of these lands should have been water logging, not wildlife mitigation.

Paragraph 136

Will there be sufficient flows available during the 50 years of the project to conduct this peaking power?

Paragraph 141

In our estimation the method used to determine a favorable cost-benefit ratio does not adequately address the negative aspects of the additional power units at Garrison.

Paragraphs 143-144

Locations should be identified so that other agencies have sufficient lead time for study and evaluation.

Paragraph 152

Why aren't the Fort Peck and Lake Sakakawea sites mentioned in the draft environmental statement?

Paragraph 165

Along with this, service roads and public access should be part of project costs.

Paragraph 174

In our estimation, each area (Fort Peck and Lake Sakakawea) should be considered separately, not lumped as it appears in this document.

Paragraph 175

In reference to the U.S. Fish and Wildlife Service's remarks, how can this be construed as favoring Plan C?

In the rest of the report 30 miles, not 20, is used in describing elimination of activities such as fishing, boating, etc.

Paragraph 178

The Game and Fish Department does not favor Plan B or C.

Paragraph 188

There is more emphasis placed on access and recreational facilities on lower reservoirs. Reservoirs such as upper Oahe, Sakakawea and Fort Peck should also receive consideration.

Paragraphs 189-190

Is there a possibility of financial aid from the Corps on fish and wildlife programs?

Paragraph 196

A weak attempt by the Corps to divorce themselves from adequate financial aid for recreational development.

SECTION E

Paragraph 3

Will these changes or adjustments be aired at public meetings or will it be an unilateral decision by the Corps?

Paragraph 58

The Department should have an opportunity to comment before any expenditures of construction funds occur.

Paragraph 83

What are the foundation conditions at Garrison?

Paragraph 102

Where did the data come from for use as a base for the computer analysis? Is it based only on the 1975 "spill" situation?

Paragraph 130

We will probably see a change in flow rates. How many hours a day will generators operate under peaking conditions?

Paragraph 132

It has been our experience that after construction is completed it becomes extremely difficult if not impossible to reach a mutually acceptable solution.

SECTION F

Paragraph 6

Is this assumption justified or is it an attempt to keep costs down for a more favorable cost-benefit ratio?

Paragraph 10

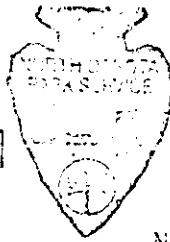
Should we not also consider synthetic gas-fired turbines?

SECTION G

Paragraph 7

Why not provide full cost on primitive or semi-primitive areas which require less maintenance and operating costs. Many areas need only a primitive access road, parking lot, and launching facilities.

NORTH DAKOTA



PARK SERVICE

FORT LINCOLN STATE PARK
ROUTE 2 BOX 183
MANDAN, NORTH DAKOTA 58554
PHONE 663-3371

March 30, 1977

Austin Engel, Director
North Dakota Planning Division
Capitol Building
Bismarck, ND 58505

Dear Mr. Engel:

These comments are being provided as a result of our review of the Draft Environmental Impact Statement prepared by the U.S. Army Corps of Engineers for the Missouri River - South Dakota, Nebraska, North Dakota and Montana.

We feel that the proposal for additional hydropower at the Garrison Dam with the related structure of a re-regulation dam further downstream is completely unacceptable. We will comment in general terms regarding this proposal.

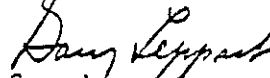
We further feel that the Army Corps of Engineers should appear before the State Natural Resources Council to explain this proposal and receive comments from the Natural Resource Council members.

A primary consideration that should be included in the statement findings are the commitments that have already been made for additional electric generation by the state of North Dakota in the general area that is discussed. North Dakota has granted water permits for a number of proposals that will generate power for both in-state and out-of-state consumers. We do not believe, except under the most extreme circumstances, that it should be necessary to significantly alter a major portion of what little remains of the Missouri River in North Dakota for additional power generation. This proposal would destroy a significant recreational resource - namely, the tailwater areas of the Garrison Dam and Reservoir.

As the liaison contact to the U.S. Bureau of Outdoor Recreation, this department is giving serious thought to an alternative proposal - that of having this portion of the Missouri River studied for inclusion under the Federal Wild and Scenic Rivers Act. Another alternative, would be to consider state legislation to include the Missouri River within a system of state scenic rivers. We have been contacted by citizens concerned about this proposal who are also in support of this idea. This is a viable alternative and one that should be considered by the Army Corps of Engineers.

If the Corps of Engineers finds it impractical to meet with the State Natural Resources Council, we would very much like to have a meeting with their representatives at some future date to discuss this proposal.

Sincerely yours,



Gary Leppart
Director

GL/kmm
Enclosure (1)



State of North Dakota
701-221-8700

MISSOURI RIVER DIVISION
U.S. ARMY CORPS OF ENGINEERS
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

April 1, 1977

William E. Read
Brigadier General, USA
Division Engineer
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

RE: SWC Project #1392

Dear General Read:

Our office has completed the review of the Final Draft Report on the Upper Missouri River (Umbrella Study), and the Draft Environmental Impact Statement (DEIS) on the same study. The parts of the selected plan which affect North Dakota include bank stabilization and additional hydro-power.

The first of these, bank stabilization, has been a problem on the Missouri River for many years. As the report shows, prior to the completion of the mainstem dams, the losses to erosion were offset by downstream accretions, resulting in a balance of acres lost versus acres gained. But since the mainstem reservoirs have been in operation, this accretion process has stopped, and there has been a continual loss of land to the river. To offset the loss we feel the Federal government has a responsibility to provide as much bank stabilization as necessary to curtail land loss. This includes future maintenance costs as well as initial construction costs for stabilization. At a progress meeting on the study in Denver on April 26, 1976, I was told that federal funds would be used for the complete bank stabilization between Garrison Dam and Lake Garrison. This included operation and maintenance costs as I discussed above. I felt satisfied that North Dakota would be getting a fair shake, and I reported this to the State Water Commission. They too felt this would be the best approach to the erosion problem associated with the mainstem reservoir operation.

At that time, the Water Commission felt they could possibly favor increased hydro-power at Garrison Dam knowing that the federal government would pay maintenance costs on the bank stabilization projects. They felt that because

GOVERNOR ARTHUR L. BURNETT
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Attorney General

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Secretary of State

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ALVIN J. WILSON
Commissioner of Game and Fish

LYNDON JUSTICE, EX-OFFICIO MEMBER
Commissioner of Agriculture

VERNON KAHY
Secretary of State Engineer

Appendix 2

William E. Read
April 1, 1977
Page 2

the fluctuation of the river levels would be greater with increased hydro-power than now exist, that erosion would also increase. Since the report now recommends local maintenance of the bank stabilization measures after five years, I do not know if the Water Commission would look favorably on increased hydro-power.

It is recognized that increased hydro-power generation is one of the cleanest means of producing energy, and the stored waters of the Missouri River would be put to one of their most beneficial uses. But we must also recognize the value of the natural resources which exist below the Garrison Dam. The riverine habitat there is valuable for fish and wildlife, resulting in heavy recreation use and value. The river itself is used for irrigation as well as for domestic purposes. These uses have to be given more consideration when the decision to increase hydro-power is made.

I feel the problems to irrigators who now pump from the river within 30 miles of the dam have to be given more consideration. Because of the wide fluctuation of the river it will be nearly impossible for them to maintain their intake facilities.

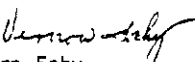
The amount of erosion associated with the fluctuating releases, I believe, will be greater than exists today. I agree there will be an almost immediate loss of 190 acres, but I think the erosion process will continue. Meandering will also continue in the future yielding new areas of erosion. This I believe is more reason for the federal government to pay total maintenance costs of any bank stabilization measures.

The waterlogging problem near south Bismarck could further be aggravated by the fluctuating discharges from Garrison Dam. The report shows a rise will result in the river near Bismarck. Further study of additional hydro-power at Garrison should include the study of increased waterlogging in this area. This is true also of further study of increased hydro-power at Ft. Peck as it involves the Buford-Trenton area. In the Buford-Trenton area the idea of an engineering solution over a land acquisition plan seems better for the area.

Our office has found the DEIS to be very general in nature. Understanding that this is only a preliminary plan for improvement of the Missouri River basin, we realize that you cannot be site specific at this time. Should the plan for increased hydro-power proceed further, we will want to have a detailed EIS, mainly because of the downstream problem. The DEIS does mention some of the adverse environmental effects, but then leaves them at that.

Regarding the tentative recommendations sent for review, I believe the above comments address the specific recommendations which pertain to North Dakota. I hope you can take my comments into consideration as you make your final recommendations.

Sincerely yours,


Vern Fahy
State Engineer

VF:DAS:dm

North Dakota Wildlife Federation, Inc.

Rural Rte. 1
Carroll Addition
Bismarck, North Dakota 58501

Publisher of FLICKERTALES
North Dakota's Leading Conservation Publication

Phone 223-8741

COMMENTS ON "UMBRELLA PLAN"
OF CORPS OF ENGINEERS FOR MISSOURI RIVER
March 31, 1977

The North Dakota Wildlife Federation has reviewed the draft environmental impact statement dealing with bank stabilization and increased hydro-power generation on the Missouri River from Montana to Nebraska. The North Dakota Wildlife Federation is a citizen's organization of some 6,000 members concerned with the wise use of our natural resources, including its wildlife and fisheries. Our comments are restricted to the North Dakota portions of the plan and the DEIS:

BANK STABILIZATION--The 80 mile stretch of Missouri river to the back waters of the Oahe reservoir is the state's last free-flowing waters of the once mighty Missouri. It has high public values. We note that 29 sites have been authorized for bank stabilization projects, which would affect 8 per cent of the total bankline in order to prevent the erosion of 60 acres of land per year. Eight of these sites already are completed or under construction.

If the increased hydro-power plan is put into effect as proposed in the "umbrella plan," there will obviously be a great need cited for more stabilization projects until the last natural features of the river are destroyed.

Can such a project be justified under the Water Resource Council's Principles and Standards of Planning? According to Corps figures, it will cost over \$5.9 million initially to protect this reach of the river from erosion. In addition, there will be sizeable annual maintenance costs. It appears from the Corps' technical report, on which the DEIS is based, that annual maintenance costs will amount to nearly \$2,000 a year to save one acre of land.

It also appears that local government entities will be expected to take over the annual cost of maintenance. At any rate, the general taxpayer will pay the cost, often for the benefit of a relatively few private landowners. For this reason, we strongly urge that each site be evaluated individually on the basis of public benefit. It would likely be cheaper to buy the adjacent river bottom land for use by the public rather than stabilize it for the benefit of a few private landowners.

The draft statement does not deal adequately with the environmental costs of encouraging flood plain development as a result of stabilizing banks. Private landowners, believing they have flood protection will likely be tempted to destroy the natural river bottom habitat in order to farm or otherwise develop the land

- ASSOCIATED WITH THE NATIONAL WILDLIFE FEDERATION -

NDIF comments on "Umbrella plan".

to the water's edge. This will again destroy the public values of the river by degrading its scenic and recreational qualities--again at public expense. Bank stabilization has a tendency to promise more protection than can be assured. Ice jams and the building up of deltas still can create flooding problems.

HYDRO-POWER EXPANSION AT GARRISON DAM-- This proposal is another effort to make North Dakotans pay for benefits to be received by other states. In order to provide 272 MW of peaking power, primarily for Minnesota, this proposal calls for discharging water at 70,300 cubic feet per second for seven hours a day. Then for 17 hours there will be no discharge. The river will fluctuate like a yo-yo daily up to 17 feet just below the dam and up to three feet at Bismarck, causing tremendous erosion problems. It is bad enough now with 11 foot fluctuations below the dam and one foot at Bismarck.

Recreational use of the river has increased tremendously in recent years. Many area people have large investments in boating, fishing and other water-related recreational equipment. Thousands more people are moving into the coal development areas adjacent to the river and looking for recreational outlets. While demand for recreational areas is increasing dramatically, this proposal will result in a 60 per cent reduction in the recreational use of the river--some 35,500 activity days a year.

What is proposed will turn a popular recreation area for 35 miles below the dam into an actual hazard. The popular tailrace and "like hole" fisheries below the dam would be destroyed. "Water logging" in the area immediately downstream from the dam will jeopardize the National Fish Hatchery and the Riverdale Game Management areas. The continually changing water depths and currents will cause great stress on fish and severely affect their movement, feeding and reproduction.

The increased velocity and volume of flow intermittently pouring out of the dam will immediately scour the high banks and destroy 190 acres of prime woodland, its habitat value ranked 7.2 on a possible scale of 10. While it is recommended that 285 acres be purchased to mitigate the habitat loss, we question whether it could ever be replaced in kind.

The impact on North Dakota should be carefully assessed, especially the impact on McLean county. This county has been severely impacted by other federal water projects. It took the brunt of the land lost when Garrison Dam was built by the Corps. It took the brunt of the building of the McClusky canal, the main supply works of Garrison Diversion, built by the Bureau of Reclamation. It is further impacted by a large coal development project that provides power totally for Minnesota. How much can one state and especially one small county be expected to

NDAT comments on "Umbrella Plan"

give for the benefit of others.

Increased hydro-power generation will mean more power lines crossing North Dakota, interfering with farm operations and the flight of wild birds. Many people in the state are growing increasingly hostile to this intrusion upon their lands. Electric power production and transmission lines from coal-fired plants is increasing dramatically in this area, again primarily for the benefit of other states.

The extreme fluctuations of water level will work a hardship on irrigators, municipal and other water users along the river.

We strongly suggest that efforts to lower peak uses of power by industry and other users is a more rational approach to the problem, rather than destroying so much in North Dakota.

We urge that another public hearing be held on these proposals so that people who will be most severely impacted are given a chance to understand what the impacts will be and to voice their opinions.

We also ask that the Corps give full consideration to the issues raised in these comments as it develops its final environmental impact statement.

END



SIERRA CLUB
NORTH DAKOTA GROUP
March 30, 1977

Dear General Read:

Please excuse the lateness of this statement. We were just informed of the draft environmental impact statement on the Missouri River. As we were to receive a copy of the information and did not. (An outside agency furnished us with one) I am requesting this presentation still be accepted for your consideration.

All comments are limited to the area from Garrison Dam to the Oahe Reservoir. This being a statement for the Sierra Club North Dakota Group. It should not however be construed as a disinterest in the overall project.

We would like to request a public hearing be held in the area of Bismarck, ND. We feel it is an important measure that should be taken to inform the local landowners of this project before it is a finalized entity.

Our comments on the summary of the draft environmental impact statement are as follows:

A. The addition of generation capacity at the Garrison Dam will not increase generation productivity. There is only a certain amount of available water for hydro-electric power.

B. The additional turbine will serve to make the Garrison power plant more of a peak load producer. This is the only benefit.

C. ALTERNATIVE: Suggest conservation of peak load usage.

ENVIRONMENTAL EFFECTS:

A. The change to a high volume discharge over a seven hour cycle will drastically increase the erosion and siltation carrying capacity of the Missouri River. It will also increase the siltation rate of the Oahe Reservoir.

B. To prevent new erosion caused by this change in the river's natural behavior, extensive rip-rapping will be required.

C. The rip-rapping of the shore lines of the Missouri will cause gorging of a channel which will cause channelization of the river..





SIERRA CLUB
NORTH DAKOTA GROUP

page 2

D. The effect of this project will be to destroy the natural river (a living entity) as we know it in the remaining 79 miles from Garrison to Oahe. The river will in effect become a rapid discharge channel for waters from Garrison to Oahe.

E. The ecology of the river will be changed, because the natural flow of the river will be changed. Certain species of aquatic life may be incapable of adapting to this change in current velocity and water levels that continuously fluctuate.

SOCIAL EFFECTS:

The rip-rapping of the shore line and subsequent channelization of the river will bring a rash of developmental pressure on previously wild river areas. As this is one of the only remaining wild river areas existing we feel it is essential that it be preserved for generations to enjoy and observe.

CONCLUSION:

We recommend no new generation capacity be added to the Garrison Dam. Added generation capacity would only serve for the destruction of the natural river and would not increase the overall generative capacity of the power plant.

Sincerely,

Robert Andre
Sierra Club ND Group
Conservation Chairman
Box 66
Judson, ND 58548



GARRISON CIVIC CLUB

GARRISON, NORTH DAKOTA

March 15, 1977

Department of the Army
Missouri River Division
Corps of Engineers
P. O. Box 103
Downtown Station
Omaha, Nebraska 68101

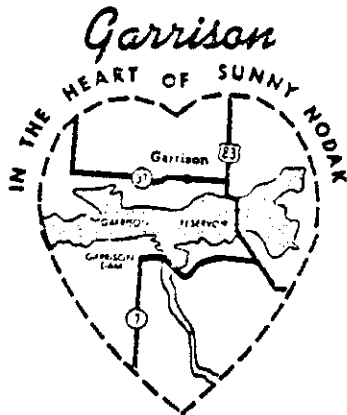
Gentlemen:

The Government Affairs Committee of the Garrison Civic Club, have reviewed the draft EIS for the Missouri River. It is discouraging to note that reply must be made by the 25th of March. This is a very short period of time in which to evaluate such a complex subject. For that reason we have considered only the portion of the project involving Garrison Dam.

With no dissension, the committee voted to go on record against this project.

By the Corps own projections, the river reach between the dam and Lake Oahe will be largely destroyed as aquatic habitat. Water users will be put to great difficulty and expense. Recreational values will be greatly impaired. We do not believe the net gain in peaking capacity is worth the cost.

Further, the inevitable increase in erosion will result in increased siltation and a greatly reduced effective life of the Oahe Reservoir. We have no confidence that the measures taken to reduce erosion will do more than reduce the rate somewhat, at worst, they may fail almost completely.



Sincerely,

Don Harmon,
Government Affairs Committee
Garrison Civic Club

Lewis and Clark Environmental Association
of
Bismarck-Mandan

—Affiliated with the State and the National Wildlife Federation—

1801 Marian Drive
Bismarck, N.D. 58501
April 1, 1977

Department of the Army
Missouri River Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Gentlemen:

The Lewis & Clark Environmental Association of Bismarck and Mandan, North Dakota, would like to make the following comments on the Corps' "Umbrella Plan" for the Missouri River. We would like to comment on the North Dakota aspects of the plan involving bank stabilization and the production of increased hydro-power at Garrison Dam.

The chief thing that bothers us is that the people who will most benefit from these projects will not pay the costs. In the case of bank stabilization, private landowners will benefit at public expense at the same time that public values will be destroyed. These values include wildlife habitat, and the scenic and recreational qualities of the river.

In the case of increased hydro power, other states will primarily benefit. North Dakotans will lose much of the Missouri river fishery, a good deal of wildlife habitat, much of the recreational potential of the river (when the demand for that recreation is growing at a rapid rate), and a sizeable amount of river bottom land.

We strongly urge that a public hearing be held in the Bismarck area, so that people might learn more about the proposal and verbalize their concerns.

We would like an economic evaluation of the total cost of stabilizing the river banks, compared to the cost of the federal government purchasing the threatened land for public use. This comparison should include the initial cost as well as annual maintenance. Also who will pay the cost of maintenance? It looks like the annual maintenance costs alone will average almost \$2,000 for each acre of land saved.

We would like quantified the economic loss to this area due to the loss of farm land, wildlife habitat, recreation and the hardship created for irrigators, municipal and other users of Missouri river water, as a result of the proposed increase in hydro power production.

We would like to know in more detail what "water logging" will do to the National Fish Hatchery and Riverdale Game Management area due to increased hydro power plan.

How do the 70,000 cfs of outflow under the plan compare with the record releases made in 1975 to control the flood situation?

We also urge exploration of a national recreational river status for

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North Dakota's part of the river (as it has been proposed for Gavins Point). This would relieve private landowners of their loss to the river while preserving the river's recreational and other public benefits.

The Lewis and Clark group is made up of 20 concerned citizens in the Bismarck and Mandan area. We sincerely hope that our concerns will be taken seriously in evaluating these plans and in developing your final impact statement.

Sincerely,

Bernice Palmer

Bernice Palmer, acting secretary



OFFICE
OF
PLANNING
AND
PROGRAMMING

BOX 94601 - STATE CAPITOL - LINCOLN, NEBRASKA 68509 - (402) 471-

Governor J. James Exon
State Planning Officer

W. Don Nelson
Director

April 1, 1977

Mr. William E. Read, Brigadier General and
Division Engineer, Department of the Army
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

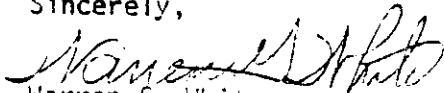
Dear General Read:

This office has completed the A-95 Clearinghouse review for the Draft Upper Missouri River Environmental Statement of January, 1977. There does not appear to be any conflict with state goals or policies. However, there are several questions which I feel should be addressed in the Final Environmental Statement.

- 1) Would the additional generation from the hydro-electric units for Fort Peck, Garrison and Gregory County offset the loss of hydro-electric out put from reduced flows due to industrial water marketing by the Bureau of Reclamation? What would be the net gain or net loss associated with reduced stream flow and additional generating capability?
- 2) If there is a net loss in generating out-put which areas would suffer reduced electrical service?
- 3) How does the Bureau of Reclamation Crofton Unit Appraisal study fit into this study?

While the above questions should be addressed by the Bureau of Reclamation, they do directly relate to the Corps' Umbrella Study. Comments from other agencies are attached for your information.

Sincerely,


Warren G. White
Natural Resource Coordinator

WGW:jkh
cc: Dan Drain
Gene Mahoney
Marvin Kivett
Dayle Williamson

Appendix 2
130



State of Nebraska
Department of
Environmental Control

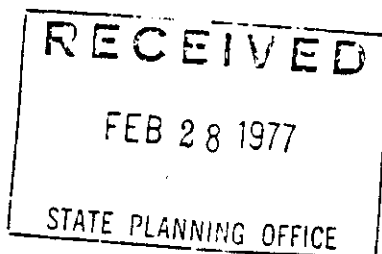
J. James Exon
Governor
Dan T. Drain
Director

Mail Box 94653 State House Station Office, 1424 'P' Street Lincoln, Nebraska 68509 (402) 471-2186

February 25, 1977

WPC-SS

Ms. Neoma Parks
Project Review Coordinator
State Office of Planning and
Programming
Room 1319, State Capitol
P. O. Box 94601
Lincoln, Nebraska 68509



RE: Upper Missouri River DES
SAI No. 77 02 14 05
Corps of Engineers

Dear Ms. Parks:

The Department of Environmental Control has completed a review of the above-referenced Draft Environmental Statement. We do not feel that the projects proposed in the document will have any major adverse impact on the water quality of the Missouri River. We support the Corps of Engineers selection of less restrictive flow control structures than have been used in the past.

In addition, we support the designation of the Missouri River from Gavins Point Dam to Ponca State Park, Nebraska under provisions of the National Wild and Scenic Rivers Act. This portion of the river is highly productive and is an excellent aesthetic and recreational resource in this area and should be maintained in a natural state.

We appreciate the opportunity to comment on this project. If you have any questions or comments, please contact this office.

Very truly yours,

Dan T. Drain
Director

RDT/th

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MARVIN F. KIVETT
DIRECTOR-SECRETARY



Phone 402/432-2793

February 24, 1977

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1500 F STREET
LINCOLN, NEBRASKA 68508

William E. Reed, Corps of Engineers
% Ms. Neoma Parks, Project Review Coordinator
State Office of Planning and Programming
Room 1319, State Capitol
Lincoln, Nebraska 68509

Re: Upper Missouri River
Corps of Engineers
SAI No. 77 02 14 05, HP #2-076-77

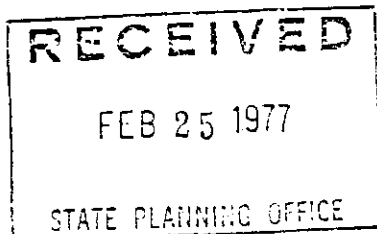
Dear Mr. Reed:

We do not have sufficient information to make a determination of the effects of your proposed project application upon resources enrolled in or eligible for inclusion in the National Register of Historic Places. At the time of final application on specific projects we will want more specific information regarding project locations and type of work. We can then recommend surveys if necessary and so forth to meet your obligations under Section 106 of the National Historic Preservation Act.

Sincerely,

Marvin F. Kivett
State Historic Preservation Officer

Richard E. Jensen
Curator of Historic Sites



MFK:lab



Nebraska Game and Parks Commission

2200 North 33rd Street / P.O. Box 30370 / Lincoln, Nebraska 68503

March 10, 1977

General William E. Reed
Division Engineer
Dept. of the Army
Missouri River Division
Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Reed:

Please be advised that our staff members have reviewed the Draft Report on the upper Missouri River (Umbrella Study), the Draft Environmental Impact Statement and the draft of recommendations made by the Missouri River Division. We offer the following comments relevant to the proposals contained in these documents which pertain to that stretch of the Missouri River lying between Sioux City and the Fort Randall Dam.

We are particularly pleased with the Recreation River proposal for that stretch of unchannelized river between Ponca, Nebraska and Gavins Point Dam. The Corps of Engineers is certainly to be commended for taking the initiative to bring this concept along to the point where it is now a proposal worthy of congressional consideration. We are somewhat concerned that perhaps not enough emphasis has been placed on acquiring or preserving the remaining riparian woodlands and perhaps too much emphasis on preserving the remaining high bank islands still present in the river. However, these are details that could be considered as the plan moves forward. The benefit cost ratio should provide the needed flexibility in this regard.

From the very outset, it was our understanding that the Recreation River concept and the bank stabilization concept were to be considered together in a single project proposal. We also believe this same impression was presented by the Division at the public meetings which were held last year. The Division has now presented these issues in two separate proposals. We strongly urge that every effort be made to see that the two separate plans move forward together at the same time.



1872-1972 ARBOR DAY CENTENNIAL

Letter to General William Reed
March 10, 1977
Page 2

Regarding the Draft Environmental Impact Statement pertaining to the proposed bank stabilization, we have a number of concerns. First of all, in Section 1, page 10, the discussion addresses the fact that projected average flow conditions on the Missouri River will decline as a result of upstream development. Nevertheless, as is pointed out, stabilization is still deemed necessary. The concern or question in our minds is how will the proposed "soft" structures function at lower flows. It seems possible that because of reduced discharge levels, the structures could ultimately function much as the conventional "hard-type" stabilization structures.

Section 2, page 10, makes an erroneous statement that paddlefish no longer provide a sport fishery below the mainstem dams on the Missouri. Please note that there still is an excellent sport fishery for paddlefish in the unchannelized Missouri River and immediately below Gavins Point Dam.

Section 4, page 1, a statement is made that 272 acres per year are lost due to erosion on the Missouri River. While in Section 4, page 4, the statement is made that 437 acres per year would be saved as a result of implementing the stabilization proposals. These two figures should be reconciled.

Section 4, page 4, discusses the beneficial effects which will result from the proposed bank stabilization. Included in this discussion is a statement that stabilization will preserve the remaining mature stands of cottonwoods immediately adjacent to the river. While we concur that these mature stands of timber are valuable and worthy of protection, we do not agree with the logic used in the draft report; that being, cottonwoods will not mature on the low profile islands and sandbars. Our observations of successional development of timber stands on similar islands and sandbars on the Platte River lend supporting evidence to the contrary. Therefore, it is our position that mature stands of timber will indeed develop on the flood plain of this stretch of the Missouri River, which is reestablishing itself at a lower elevation due to the effect of the upstream impoundments.

Section 6, page 3, because it was not necessary to develop a benefit cost ratio for the proposed stabilization effort, it appears that very little effort was made to fully develop the other alternatives which perhaps should be considered. While we certainly concur that buying out the problem is not necessarily the best solution for the erosion problems as a whole on the river, we do believe that for some areas this may be the most desirable solution, both from the standpoint of cost and public acceptance. Therefore, we believe this alternative needs to be given further consideration.

Letter to General William Reed
March 10, 1977
Page: 3

Finally, in Section 6, pages 8-10, the detrimental effects from bank stabilization are discussed. We see no discussion in this section regarding the amount of timber and other riparian habitat that would have to be destroyed because of the right of way required to construct the structures from the shore. It appears that in some cases this could involve considerable land; and, furthermore, it may serve as a catalyst to encourage additional clearing by the riparian landowner.

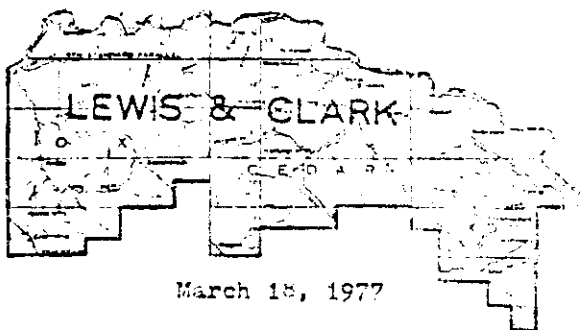
If you have any further questions or comments regarding our concerns, please feel free to contact Norm Stucky of our staff.

Sincerely,

Eugene T. Mahoney
for: Eugene T. Mahoney
Director

ETM:NPS:dw

cc: State Office of Planning & Programming



Lewis & Clark Natural Resources District

P.O. Box 515 Hastings, Nebraska 67739 Telephone: 254-6758

March 18, 1977

Gus Karabatsos
Chief, Planning Division
Department of Army, Corps of Engineers
P. O. Box 100, Downtown Station
Omaha, Nebraska

Dear Mr. Karabatsos:

I am writing to express the views of the Lewis & Clark NRD concerning the Draft Environmental Impact Statement on the Missouri River. Our District is specifically interested in the Bank Protection Projects and designation of "Recreational River" between Gavins Pt. Dam and Ponca State Park.

We have learned first of all that our copy of the Environmental Impact Statement is not complete and we feel we should have received the entire document. We will, however, make comments about the material we have before us. Let me say initially that we are enthusiastically supportive on the Bank Protection aspect, but we are only cautiously receptive to the results of a Recreational River designation.

Concerning the bank protection, the Board discussed page I-8, List of Sites, and wish to relay that this should not be considered a complete listing of proposed sites on the Nebraska side. We feel that such a listing should allow for more sites as necessary. We would also add that the figures given on page I-12, Table 2, are nowhere near any expressed estimate of our sponsorship costs which we consider as negligible if we are cast as the "non-federal" sponsors.

We have many concerns in the Recreational River aspect, namely: who are the "public agencies" that will be expected to have charge of operation and maintenance expressed in item #1.58, page I-29? The Lewis & Clark NRD does not wish to be considered for sponsorship of recreational aspects at this time. We also understand the 1,700 acres of shoreland discussed on page I-29 are to be acquired as easement, and not as title; unless you would inform us otherwise.

Gus Karabatsos

We would also like clarification on the "standardization" of permit requirements for use of irrigation pumps, docks, ramps, etc., and what "prerogatives" may be lost to individual owners along the river by this designation? Would this include restrictions on irrigation use along the river? As present sponsors for the bank protection work being done in Nebraska between Gavins Pt. and Ponca, we have a great deal of concern about the effect this designation will require from us.

We would appreciate a response to these questions as soon as possible.

Sincerely,

Tom Moser

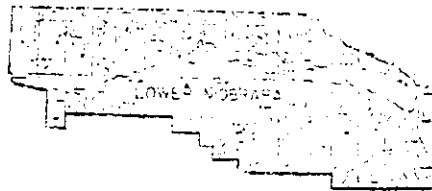
Tom Moser
General Manager

TM:js

cc: Lower Niobrara NRD
Earl Rowland
Warren Patefield

PROGRAMS:

Soil and Water Conservation
Water Protection
Flood Control
Resource Conservation
Grass Seeding
Tree Planting



PHONE: 775-2343

Lower Niobrara
Natural Resource District

P.O. Box 203
Butte, Nebraska 68722

January 12, 1977

Wm. E. Read, Brigadier Gen. U.S.A.
Division Engineer, Missouri River Division
Corps of Engineers
Box 103, Downtown Station
Omaha, NE 68101

Dear Sir:

In recent months representatives from south central South Dakota and north central Nebraska have met to discuss a common problem, the great need for water related development. Municipalities and farms alike have seen their water source depleted to the point where restrictions must be imposed.

Boyd County Rural Water District #11, a rural water district which was organized in 1972 has received assurance from FIA that it will be funded but presently cannot find an adequate source of water within its boundaries. This district has been designed to service 143 rural hook ups plus the village of Spencer, population 600. The estimated water needs are slightly over 750 acre feet annually.

We can readily see a potential for irrigation on 50,000 acres in Boyd and Keya Paha Counties north of the Keya Paha River. This would indicate a need for 75,000 acre feet of water annually. This is all in addition to water needs in south central South Dakota.

We feel that a pumped-storage facility in the Lucas S.D. area, referred to in the Corps of Engineers, Umbrella Study could, with some modification, be a potential supply of water for this area. We are therefore sending an opinion resolution expressing the Lower Niobrara Natural Resources District intent to sponsor such development.

The Natural Resources Districts representing the entire Niobrara River Basin (the Upper Niobrara-White, the Middle Niobrara and the Lower Niobrara) voted unanimously on January 13, 1977 to support the concept of water resource development from a pumped-storage facility located in south central South Dakota.

Sincerely,

Keith Crum, District Manager

cc. Dist. III Planning & Development Kathy Wenne, Mayor of Gregory
Tom Ellsbrider, Mayor of Benkelman Star Harbor, Benkelman, S.D.

Appendix 2

OPINION RESOLUTION

A RESOLUTION EXPRESSING AN OPINION ON THE WILLINGNESS AND ABILITY OF THE LOWER NIobrARA NATURAL RESOURCES DISTRICT TO COOPERATE IN THE DEVELOPMENT OF A MULTI-USE WATER PROJECT, SEEKING WATER FROM A PUMP-STORAGE GENERATION FACILITY TO BE DEVELOPED BY THE US ARMY CORPS OF ENGINEERS.

WHEREAS, the U.S. Army Corps of Engineers proposes to construct a pumped storage electrical generation facility in the Gregory County South Dakota area; and

WHEREAS, the forebay dam of such a facility could be a source of water for a multi-use water project in south central South Dakota and north central Nebraska; and

WHEREAS, a need for water resource development is evident during the frequent years of below normal rainfall; and

WHEREAS, various studies indicate that there are nearly 50,000 acres of potential irrigable lands in Nebraska adjoining the Gregory County South Dakota area; and

WHEREAS, domestic water supplies are not sufficient in some communities; and

WHEREAS, municipalities and rural water districts are seeking adequate water sources; and

WHEREAS, the Lower Niobrara NRD desires to see the development of measures which will meet public needs, and

WHEREAS, the Lower Niobrara Natural Resources District has within the Nebraska area, the power and authority and at least a portion of the financial ability to provide the necessary assurances required by the Secretary of Army prior to the construction of the proposed project.

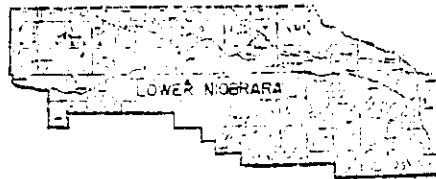
NOW THEREFORE BE IT RESOLVED, that upon completion of a plan for construction satisfactory to itself and to other potential project sponsors, the Lower Niobrara Natural Resources District intends to provide to the Secretary of Army such assurances as it may itself reasonably provide within financial limitations, and to seek the cooperative sponsorship of such other non-federal interests as are essential to provide the financial resources necessary for compliance with such assurances:

Resolved and passed this 11 day of January 1977 by the Lower Niobrara Natural Resources District.

Donald Truckel
Chairman

PROGRAMS:

Soil and Water Conservation
Water Protection
Flood Control
Resource Conservation
Grass Seeding
Tree Planting



PHONE: 775-2343

Lower Niobrara
Natural Resource District
P.O. Box 203
Butte, Nebraska 68722

March 30, 1977

Gus. J. Karabatsos, Chief Planning Division
Dept. of Army, Corps of Engineers
Box 103, Downtown Station
Omaha, NE

Dear Mr. Karabatsos:

We have reviewed the Missouri River Draft Environmental Statement and will relate a few of our impressions.

First we feel it would have been beneficial to have had a copy of the Umbrella Study.

Bank Protection--We recognize a need for bank protection along several reaches of the Missouri River and appreciate seeing specific sites within our area which are authorized by section 32, PL 93-251 as possible streambank protection sites, namely Choteau Creek and Sunshine Bottom. We would however like to see guidelines changed which required local sponsor, under the streambank protection program to assume operation and maintenance of a project after works of improvement are complete. It seems unfair for local sponsors to maintain corrective measures on a problem which may have been caused by a Corp project (constant releases from mainstem reservoirs).

Additional Hydro Power--It is obvious that demands are increasing for electricity. When additional generation facilities are developed we would support a minimum disturbance of natural resources and adequate consideration be given to individuals who may be requested to relocate and/or sell land for development.

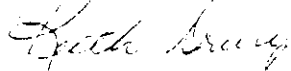
We are particularly interested in the Gregory County Pumped Storage Site. We support the study for including a multi-use water development project in conjunction with the proposal. We believe there are a number of area water related problems which could be solved if a viable project could be developed with the pumped-storage site as a water source.

March 30, 1977
Gus J. Karabatsos

On Site Rearing Ponds--We understand that the outstanding fishing success that was common in years immediately following installation of the mainstem dams has dropped off in later years. We can see some merit to the addition of rearing ponds on Lake Francis Case if research indicates a feasible program.

National Wild and Scenic Rivers Act Designation--This particular area is not within our district. We however would like a clarification as to what prerogatives of local ownership might be lost, and who would be the local sponsors and their responsibilities.

Sincerely,



Keith Drury
District Manager

cc Lewis and Clark NRD
Earl Rowland

I also understand as a result of information gained from the meeting, that the fish and wildlife resources above the Sioux City area have already been affected by the 1940 project.

Thank you again for responding to my request for information.

Sincerely,

Iris Hatchorn

Ms. Iris Hatchorn
Representative, Elkhorn
Valley Sierra Club Group

cc: Ken Hugo, President-Elkhorn Valley Group
Bob Warrich, President-NE Chapter of the Sierra Club

NEBRASKA WILDLIFE FEDERATION

Annual Meeting, Kearney, Nebraska, February 4-6, 1977, Resolution No. 5

Missouri River, Yankton to Ponca

WHEREAS the Missouri River between Yankton, South Dakota and Ponca, Nebraska, the last reach of the old wide-bed, meandering Missouri remaining in a relatively natural state, offers unparalleled opportunities for natural scenic beauty, quality outdoor recreation, the enhancement and propagation of wildlife, the preservation of woodlands and wetlands, and the improvement of fisheries; and

WHEREAS this reach of the Missouri River contrasts dramatically with the reach from Sioux City, Iowa to the mouth, where channelization for navigation has been accompanied by channel degradation, stage lowering, illogical land use conversion, woodlands and wetlands destruction, water quality degradation, and lack of public land and access; and

WHEREAS the reach of the Missouri between Yankton and Ponca also contrasts markedly with the reach between Ponca and Sioux City, Iowa, where "hard" bank stabilization measures have degraded natural scenic value and encouraged the river to straighten or "channelize" itself destroying valuable fish and wildlife habitat and recreational opportunities; and

WHEREAS the Bureau of Outdoor Recreation has proposed that the reach of the Missouri River between Yankton and Ponca be designated a National Recreation River within the Wild and Scenic River system; and

WHEREAS bank erosion is occurring on this reach of river.

(over)

resulting in losses of valuable riparian habitat as well as hardships to bordering land owners in Nebraska and South Dakota; and

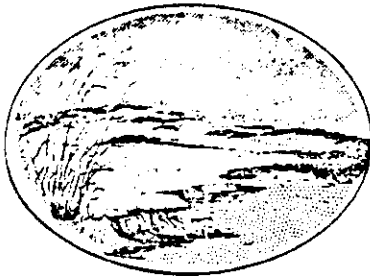
WHEREAS The U. S. Army Corps of Engineers has advocated experimental, "soft" stabilization measures consistent with the scenic values of the natural river at a limited number of sites experiencing severe bank erosion as a feature "with-plan" for Recreation River designation;

NOW THEREFORE BE IT RESOLVED that the Nebraska Wildlife Federation at its Annual Meeting assembled February 4-6, 1977, in Kearney, Nebraska, supports Recreation River designation within the National Wild and Scenic Rivers System of the reach of the Missouri River between Yankton, South Dakota and Ponca, Nebraska; and

BE IT FURTHER RESOLVED that the Nebraska Wildlife Federation implores the State of Nebraska, U. S. Army Corps of Engineers, Bureau of Outdoor Recreation, conservation and other interested groups at the national and local levels actively to support the National Recreation River designation and to proceed with the development and execution of such plan immediately; and

BE IT FURTHER RESOLVED that the Nebraska Wildlife Federation unalterably opposes channelization for navigation; extensive stabilization; traditional "hard" bank stabilization; and any and all measures which would degrade natural scenic values, encourage the river to channelize itself, or in any other way alter the natural, free-flowing, meandering character of the river; and

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the National Wildlife Federation with the request that it be introduced, considered, and adopted by the delegates in attendance at the national convention assembled in Washington, D. C., March 25-27, 1977.



NEBRASKA CHAPTER
of The
SIERRA CLUB

March 26, 1977

General William E. Read
Missouri River Division
U.S. Corps of Engineers
215 North 77th St.
Omaha, Nebraska 68102

Dear General Read,

I have recieved Ms. Iris Watchorn's statements concerning the Draft EIS for the Missouri River and echo her concerns, with a few additional comments.

The Missouri River was a large, free flowing river, draining the upper great plains of the United States and containing within its ecological environment, many unique features that are know completely destroyed by the dams, created by the Pick Eloan Plan.

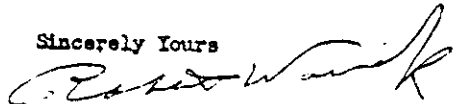
One small segment of a once great river, is that remenant between Gavins Point and Ponca Nebraska. While I commend the Corp for recommending that it be concidered as a National Recreation River under the Wild and Scenic Rivers Act, I question the bankstabilization necessary for it to remain in its natural free flowing state.

Could not the great deal of mony required for this kind of stabilization be used to purchase more land along its sides, so that the river can meander as it has done historically? It was only until fairly recently, that farming practices went right up to the rivers banks, and only then because of the dams.

I do appreciate the access provided in the plan, but I would like it to remain as much in a natural state as possible. The area has tremendous recreation potential, and wise & careful decisions must be made to develope the river correctly.

I am sorry this comment is a little late, but farming has been a little hectic this week. I hope you will accept this in preparation of your final EIS.

Sincerely Yours


Robert Warrick, Chairman
Nebraska Chapter of the Sierra Club
RR1 Box 11
Meadow Grove,
Nebraska 68752

cc: Iris Watchorn

"Manage compassion both for the earth and for man". -- Mari Sandoz

Appendix 2

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Recycled/reclaimed waste paper

MISSOURI RIVER BANK STABILIZATION ASSOCIATION

NEWCASTLE, NEBRASKA 68757

March 23, 1977

Gus J. Karabatsos
Chief, Planning Division
Dept. of Army, Corps of Engineers
P.O. Box 103 Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos;

I am writing to express the views of the Missouri River Bank Stabilization Association on the Draft Environmental Impact Statement for the Missouri River, South Dakota, Nebraska, North Dakota and Montana.

We support very strongly the bank stabilization part of the plan. The work presently being done is drawing very favorable comments from sportsmen, environmentalists and land owners in our area.

We take exception to the statement on I-13 - 1.21 (those portions specifically required by section 161 and those permitted by section 32). On page I 12-1.20 (c) you quote directly from the bill, "at a minimum demonstration projects shall be conducted at multiple sites on (2) that reach of the Missouri River between Fort Randall Dam, South Dakota and Sioux City, Iowa. (3) that reach of the Missouri River in North Dakota at or below Garrison Dam; and sub section 1, section 161 at PL 94-587 modified section 32 subsection c (3) striking the 'and' and adding 'including areas' named in the bill this does not say specifically required as you interpret it.

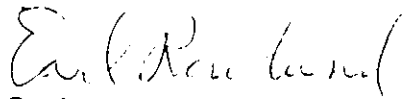
We approve the designation of the Missouri River from Gavins Point Dam to Ponca State Park as a Recreation River I-29 - 1.56, but with reservations. On I-30 - 1.60 you mention private uses of the river bank land and water may be somewhat incompatible with the proposed designation. We strongly hope that the easements and permit actions you plan will not be of a nature that restricts the adjacent landowners to the point they will not want to sell or lease land for scenic or recreation easements. On page 11-7-2.14 we strongly support the continued stabilization mentioned in

this section. In our area from Fort Randall Dam to Ponca State Park this would save riparian habitat, many scenic areas, some buildings and farm land. On page 11-9-2.21 you mention the decline of the paddle fish below Gavins Point. The fishermen in that area are reporting exceptionally good snagging this year, 1977.

Page IV-4 and IV-5, "Beneficial Effects of Bank Stabilization" covers and explains very well the effects and also the need for bank Stabilization.

We strongly support the statement in 5.10 page V-3.

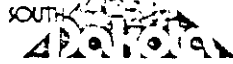
Sincerely

A handwritten signature in cursive script, appearing to read "Earl Rowland".

Earl Rowland
President

STATE PLANNING BUREAU

State Capitol
Pierre, South Dakota 57501
605/224-3661



Office of

Executive Management

762-75-1

March 24, 1977

Mr. Gus Karabatsos
Chief, Planning Division
Department of the Army
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 6810

Subject: Draft Environmental Impact Statement...
Missouri River-South Dakota, Nebraska,
North Dakota, and Montana. (S.D. EIS
#080277).

Dear Mr. Karabatsos:

The South Dakota State Planning Bureau has distributed for review the draft EIS pertaining to the Missouri River. The following comments were received from the S.D. Department of Natural Resources Development:

We have no adverse comments on the Draft Environmental Impact Statement-Missouri River-South Dakota, Nebraska, North Dakota, and Montana, with the following exception:

Section (b), page 2: We thoroughly disagree with the proposal that the bank stabilization projects as proposed be subject to the non-federal requirements for (1) lands, easements and rights-of way, (2) hold and save the United States free from damages, and (3) assume operation and maintenance.

These projects do not address local problems. They are problems of the entire federal Missouri Project and should be handled just the same as any other problem arising from that project: i.e., the problems should be handled as a federal responsibility.

Mr. Karabatsos
March 24, 1977

Both the S. D. Department of Environmental Protection and the S. D. Department of Game, Fish, and Parks have requested an extension in review time. When their comments are received we will forward them to you. Hopefully, time will allow you to consider their comments. Thank you for the opportunity to review and comment.

Sincerely,



Dan R. Bucks
Commissioner
State Planning Bureau

DRB/afw



Department of Natural Resource Development

OFFICE OF THE SECRETARY

Office Building Number 2, Pierre, South Dakota 57501

Phone 605/224-3151

April 28, 1977

Brigadier General William E. Read
Division Engineer
Corps of Engineers - Missouri River Division
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

This Department has reviewed the Draft Technical Report (Appendix 1) and the Draft Environmental Statement prepared by the Corps of Engineers on the Missouri River (the Umbrella Study). Generally, we concur in the statements and conclusions presented with the exceptions as noted herein.

The following are some minor comments:

1. Page B-14, fifth line - I believe it would be more appropriate to say that in areas with annual precipitation of 18 inches or less, 160-acre farms proved too small.
2. Pages C-50 and 51, paragraph 126 - I believe a statement should be added, "Large releases of water from the Gavins Point Dam causes water to back up in the James River, due to its low gradient, and can contribute to local flooding problems."
3. Page E-10, paragraph 17, the sentence "Irrigation typically commands the use of agricultural chemicals which could lead to addition of salts in the soil and an additional source of wildlife poison." I believe this sentence is conjectural, without adequate documentation, and should not be included in the report.
4. Page E-89, paragraph 171, the sentence "Those outstanding features which provide the eligibility for designation and which could be adversely affected by Section 10 and Section 404 permit actions will be preserved by inclusion of appropriate constraints as conditions of individual and general permits." I believe it would be well to spell out what some of the "appropriate constraints" might be, so that people could evaluate their effects upon local water developments needs.

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Brigadier General William E. Read
April 28, 1977

S. Page E-123, second statement from bottom of page relating to "regulation of water flow". Do you foresee that this designation of the river could require the release of water for recreation at the expense of other uses in the event of serious shortages of water?

The major difference we have with the report is with the conditions for implementation of the bank stabilization proposals. Specifically, these conditions are the requirements for non-Federal sponsorship as called for by legislation currently in effect. We appreciate the offer of the Corps to maintain the projects for five years. However, the report itself makes a very good case, in a number of places, that the needed work is caused by the Missouri River System of main stem reservoirs and navigation channel and that bank stabilization is a cost of doing business for the System. Several local entities have reluctantly agreed to provide sponsorship for some of the initial work in order to move it along. However, none of them feel they are capable of sponsoring all the work that is needed. These are not local flood control problems in the usual sense; rather, they are part of the operation of the Basin System and should be dealt with as such. Therefore, we reserve the right to continue to press for a change in the Federal legislation requiring local sponsorship for erosion control on the Missouri River. Any other commitment on the part of this Department will require further Executive and Legislative action.

We believe the bank stabilization plan as offered is a good one. We certainly agree with the statement on page D-23, "Lack of bank stabilization, for example, will not preserve the river in its present form, rather it will preserve a regime of continuing change--for the worse, in this instance."

I am please to know the Corps of Engineers is seriously considering local multiple purpose uses of water from the Gregory County pumped storage unit. This will greatly enhance a project facility which will apparently be needed to provide the greatest hydropower benefits from the Missouri River System. The State and local interest in Gregory County are moving forward with arrangements to plan and implement this multiple use of water.

Thank you for the opportunity to review and comment on the report at this field level. The official comments and views of the Governor will be forthcoming upon request by the Chief of Engineers at a later date.

Very truly yours,


Vern W. Butler
Secretary

VWB:nrf

CC: Governor Richard F. Kneip



Department of Game, Fish and Parks
Pierre, South Dakota 57501 • Phone 224-3387

Division of Administration

June 21, 1977

Brigadier General William E. Read
Division Engineer
U. S. Army Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

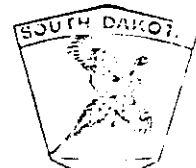
In response to your letter of February 7th 1977, to review the Draft Technical Report, Appendix I, the Draft Environmental Statement and your proposed recommendations on the Missouri River, South Dakota, Nebraska, North Dakota and Montana, the South Dakota Department of Game, Fish and Parks offers the following.

Specific Comments:

B-41-83 The last sentence is in error. Walleye fishing in Oahe and Oahe tailwaters is most popular, as well as the dominate predator species in Lake Sharpe and Francis Case. It provides the mainstay of the fisheries in all three reservoirs in South Dakota.

B-51-110 No mention is made of minimum flows for fisheries, especially in the major reaches bordering, or in South Dakota, such as the Gavins Point-Sioux City reach, the Fort Randall Dam-Lewis & Clark reach, and the Oahe Dam-Lake Sharpe reach. Complete stoppage of flows occurring for varying periods is very detrimental to the riverine aquatic habitats and fish management.

B-52-112 It has been apparent that the State's Game & Fish Departments cannot get any reasonable water level management by working alone. The possibility of good conditions for fisheries production, one year out of four is better than nothing, so the states cooperate to get some coordination. It also should be noted that good populations of predator fish may be maintained by a substantial year-class every four years, but they must have forage species of suitable size to feed on. Most forage species depend on the same type of spawning conditions that produce the large predator year class. Thus with a four year cycle,



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Brigadier General William E. Read
June 21, 1977

the predator species generally have three years of poor forage production. This situation has been especially true of the reservoirs above Lake Sharpe, the gizzard shad's northern most range.

B-52-112 Another factor ignored by this statement of cooperation is the fact that fish reproduction can fail because of numerous factors other than water levels. Just because one year out of four is selected for fish spawning water level management on a particular reservoir, there is no guarantee that fish will produce a significant year class. This could happen every year the reservoir is chosen for special water management. Three such occurrences in succession could eliminate the species or reduce its population to such a low, existing stock would be inadequate to produce a significant year class.

In natural lakes and many artificial lakes water level conditions are generally suitable for good spawning and rearing every year. In these waters significant year classes of sport fish, particularly large predators, occur only one year out of three or four. So even under the best water level conditions, good year classes develop on a 1/3 to 1/4 chance. We cannot be naive and say that good fishing can be maintained on a four or five year cycle of good water level conditions in the mainstem reservoirs.

B-52-113 Lake Lewis and Clark has never been operated for high spring water levels because of flood control restraints; Lake Sharpe cannot be raised into the terrestrial vegetational zone because of facilities constructed near the 1,421 msl level.

B-53-153 Wildlife production on the refuges may be substantial, but in South Dakota it cannot make up for the 500,000 acres of prime riverine habitat inundated by the mainstem reservoirs. This condition is aggravated by the Corps' lack of activity in moving on the agreed upon plan. The net effect of the construction of the mainstem reservoirs has been disastrous to wildlife.

B-53-115 No mention is made of the current mitigation plan for Oahe and Big Bend in regard to management for wildlife. The Missouri River Division is cognizant of this plan, and is responsible for the fact that no action has been taken on it. In addition, the Corps has been furnished abbreviated management plans for the mitigation lands identified.

B-64-151 1971 to 1973 is a very short time span in which to base trends. More information covering longer time periods is available.

B-64-153 1970 to 1973 is again a short time span in which to base trends. During 1971, an estimated 2,831 paddlefish were

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harvested. Paddlefish information given is misleading. The species is a relic because of the mainstem dams, as our studies show. The South Dakota Department of Game, Fish and Parks has stocked some fingerling and fry in the reservoir and have an ongoing propagation project. There is no reference to our research.

B-67-156 First sentence, third line..."depletion", should be deposition.

C-30-75 The Department has always considered instream flows as necessary and a beneficial use to all riverine species whether aquatic or terrestrial, plant or animal, including man. We are happy that the Corps realizes instream flows as a possible use.

C-42-102 An apparent lack of action by the Corps of Engineers on the Oahe-Big Bend mitigation plan for South Dakota has this plan stalled in the same position it occupied over a year ago. At the same time, the Corps has produced the umbrella study at the expense of action on the mitigation plan. It appears to us, that the Corps should complete the Oahe-Big Bend projects and their obligation to the people of South Dakota, by mitigating for the Oahe-Big Bend Reservoirs first and secondly conduct other studies.

C-30-158 and 159 Subimpoundments could sustain panfish and fill a gap in the reservoirs fisheries. Walleyes are now the chief predator, but there is no other abundant, highly catchable species. Northern pike are desirable, but good panfishing is also a major need.

C-80-160 We do not believe the concerns over large reservoir recreation are "largely unfounded". Only the foolish or those who can afford a large boat, fish and boat the reservoirs. Small boat users either use only a very small portion of protected embayments or stay away completely. "Family fishing" is not available on any of the large reservoirs. Moderately windy days, which are common in South Dakota, show a complete absence of boats on Oahe, while many are found on Hipple Lake.

D-13-55 Acquisition of an interest in water-logged lands below Fort Randall appears to be a workable solution. We would suggest these lands be dedicated to wildlife apart from the current Oahe-Big Bend Mitigation plan. This would bring habitat replacement more in line with what was lost.

D-23-80 We agree that a lack of bank stabilization will not preserve the river in its present form, rather it will preserve a regime of continuing change. However, the lack of bank stabilization is not all bad, as implied.

D-54-155 Sedimentation can be minimized in subimpoundments. While cold spring rains are no more a threat in subimpoundments than in rearing ponds or lakes. Establishment of plant growth in subimpoundments

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would be better suited to support forage fish. The statement in the draft EIS is in error. The elimination of the subimpoundment is not justified, and indeed, may be what is needed in certain areas.

D-54-156 We cannot agree with the draft's conclusion. People travel to fish these species wherever they are found in suitable abundance. The listing of brown trout and the possibility of them becoming self-sustaining is not part of our introduction program. They were introduced strictly because of a temporary surplus at the hatcheries and are not expected to be available in the future.

D-76-184 We believe that the environmental effects of the Gregory County pump-storage plant will be more severe than what is indicated here and in table D-13. Why does the pump back need to be compared to a fossil fuel plant which may not be located in that same area? The aquatic ecosystem now existing in the effected embayment will likely be completely changed because of its inability to adjust to daily and rapid reversals of intense currents, water temperatures, and chemistry. Energy dissipators and fish screening devices should be installed in the afterbay intake and discharge area.

D-78-188 Why just trophy fishing on Oahe and Francis Case? Lake Sharpe also has excellent trophy pike fishing.

D-78-189 We agree with the establishment of semi-aquatic vegetation. This, however, does not go far enough. They must be fenced to prevent grazing by livestock and it is questionable whether the 12 areas are enough. These vegetative areas depend on rising reservoir pool levels in the spring and summer to insure production of forage species. This has been the major management problem on the reservoir for fish production. If rising pool levels could be assured, these same areas would produce some northern pike by natural reproduction.

The establishment of semi-aquatic grassy vegetation will benefit fish production both by predator and forage species if they traverse the range of reservoir fluctuation and some portion of the cover is under water every year. Lakes Sharpe and Lewis and Clark should be included in the plan.

The pond culture of northern pike is complex. The plan outline approaches the problem, but does not take many factors into consideration.

For example:

1. Northern pike are not abundant in the reservoirs, and supplies are often very low elsewhere in the state. The large volume of pike eggs would not be available most years unless special brood stock waters were provided.

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2. Mobile hatcheries are unnecessary because the culture of northern pike fry in the volumes indicated can be accommodated in existing hatcheries.

3. The management of ponds from day to day is not time consuming, but they must be checked daily. Filling and draining requires a crew, but to have them stay at the ponds throughout the rearing season is a waste of manpower. It is more efficient to have the ponds all in one place, and haul fingerling to the stocking sites.

4. Draining the ponds directly to the lake is cheap, but it is never known how many fish are actually being stocked.

5. Plan A addresses only the production of northern pike. Other species such as paddlefish and other game fish are not considered.

6. Plan B modified to develop a new hatchery complex at Oakie Dam would be more feasible because of the additional species that could be raised and operated more efficiently, giving a wider range of benefits accrued. One acre ponds or larger hatchery ponds are far more useable and less expensive than the one-third acre ponds listed.

D-83-191 Plan B should be re-evaluated because the benefits are too narrowly defined. Just northern pike are considered whereas paddlefish and other sportfish species must be included.

D-83-192 Plan B does not have to displace 150 acres of crop and recreation land.

D-84-194 Comment same as above.

D-84-194 Same as above.

D-84-195 Lake Sharpe is omitted.

D-91-200 Selected preservation should not only be aimed at islands but also at shoreline areas within the high banks.

D-91-200 Evaluation of structures should be carried out by appropriate state and federal agencies. No mention is made of who and how these structures should be evaluated.

E-51-94 We disagree with the statement that no mitigating measures are necessary except possibly for cultural resources.

The Corps should install energy dissipators and fish screening devices in the afterbay intake and discharge area. As much habitat as possible should be developed around the forebay and other project facilities.

E-77-137 The Gregory County site will thus destroy one-thousandth part

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of the embayment resource at Francis Case. This is a significant impact upon that particular embayment, but not upon the entire resource of the project. This type of thinking has led to the shrinking and demise of many species. This principal of gradualism, or one piece at a time, is unacceptable. All mitigating measures possible should be taken. See preceding comment.

E-77-144 Comment same as above.

E-79-149 We agree that the establishment of a good population of a larger predator sportfish, that could be taken with relative ease by a variety of anglers is desirable. We also agree that some methods of propagating these fish and their forage is necessary. Studies concerning the most efficient method of producing these desired results are necessary. The plan for trophy fish production presented in this draft of the E.I.S. approaches the problem. However, the methods of accomplishment has some areas of erroneous assumptions and misconceptions. Reservoirs in South Dakota that would require stocking of northern pike fingerling include Oahe, Lake Sharpe, Lake Francis Case and possibly Lewis and Clark. The entire area of each reservoir is not suitable habitat for northern pike and not accessible to fishermen, therefore, the suitable accessible areas amount to about 20% of each reservoir for a total of about 100,000 acres.

Oahe	60,000 ac
Sharpe	11,000 ac
Francis Case	20,000 ac
Lewis and Clark	<u>7,000 ac</u>

Total 98,000 ac

Stocked annually at a rate of 100 fingerlings per surface acre of suitable habitat, 10 million (2 to 2.5 inch) northern pike fingerlings would be needed. This would require about 300 acres of rearing ponds at the average production of 35,000 fingerlings per acre. Mortality of the fingerling to catchable size would be high, but this level of production should supply at least six, 3 year old northern into each acre of suitable habitat. Dispersion will reduce numbers more (probably another 50%). The end results would be about 2 or 3 available adult pike per acre for every 100 fingerlings stocked in the target waters. This would be an acceptable level of recruitment and probably would maintain a trophy fisheries especially if the size and limit restrictions are also made more conservative.

60,000,000 northern eggs would be required annually for producing 30,000,000 fry. Current capacity in existing hatcheries could handle that volume. Therefore, mobile hatcheries are not necessary. The source of eggs, however, would be very difficult to find during most

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June 21, 1977

years. The reservoir northern pike stocks are now so low, spawn taking is not practical. Eastern South Dakota lakes have variable northern populations. Many years, because of low waters and winter kill, large quantities of eggs are not available. It would be necessary to provide a reliable source of northern pike eggs. This could be accomplished by constructing a few subimpoundment lakes that would be managed for pan-fishing and northern pike brood stock.

In the management of rearing ponds, it is very desirable to check the fish and environmental conditions daily. This does not take a lot of time and does not require a full day's work. It does not justify a crew of men stationed at scattered rearing pond locations on a full time basis. However, if a crew has to travel long distances to check the ponds it takes a lot of time and energy. Construction of a centrally located hatchery and ponds are the logical and efficient method of rearing fish. The only energy costs involves transportation of the fingerlings to the stocking sites. Manpower costs are greatly reduced and those necessary can be used for other duties when daily pond checks are completed.

Actually, to us the most feasible plan for maintaining trophy northern pike, plus maintaining paddlefish and increasing largemouth bass, crappie and other fishing in the reservoirs in South Dakota would be to construct a new hatchery complex on existing Corps of Engineer's land below Oahe Dam. This fish hatchery would be centrally located, require no additional acquisition of land, have an excellent water supply and could also raise coldwater species suited to the deep water areas of the reservoirs in addition to the other species.

Paddlefish are an historic and important part of Missouri River ecology. The Umbrella Studies should recognize the impact of the dams and impoundments on this species and provide methods of restoring their populations. We believe the Corps of Engineers has a major responsibility for perpetuating the species because of the destruction of paddlefish and other riverine species habitat from Fort Randall through South Dakota. These fish cannot be written off as an unfortunate result of the Missouri River project. The perpetuation of the fish in areas now not capable of naturally producing them is a justifiable cost to the project.

E-106-Table-E-15 Bishop Marty Rectory is located in Yankton County, not Clay County.

E-109-212 "Clay County State Park" should read "Clay County State Recreation Area".

E-110-213 Comment same as above.

E-122-248 Lands identified under the current mitigation proposal for Oahe and Big Bend reservoirs, (Hog Island and the west unit of the Vermillion area), should be acquired as mitigation areas. These

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areas acquired as mitigation would be compatible with the recreational river designation.

E-124-2 Hiking should be added to the list of popular activities presently occurring.

E-129 Comment same as below.

E-134-278 A stronger statement is to address this situation.

Private attempts of stabilization have not only put car bodies, junk and rubble into the river, but much of the terrestrial corridor which would be covered by scenic easements, is also littered with junk, this also must be removed.

F-27-14 thru F-30-21 and Table F-14 Comments made previously suggest extensive modifications.

General Comments--

The South Dakota Department of Game, Fish and Parks believes the timing and release of the Draft of the Umbrella Study unfortunate in view of the fact that it evolved at a time when there was a corresponding lack of action on the mitigation plan for Oahe and Big Bend reservoirs. This reflects a lack of sincere intent by the Corps of Engineers and specifically the Missouri River Division. It is our hope that the Corps will move off dead center, and fulfill its obligations to the people of South Dakota forthwith, and not carry on and devise new studies at the expense of the aforementioned mitigation plan.

Provided all mitigating measures possible are implemented, the Gregory County pumped storage project is the most acceptable hydro-power feature for South Dakota. Such mitigating measures should include screening, energy dissipators and habitat development wherever possible around project facilities.

Additional hydropower units at Fort Randall would have very adverse effects on the fish and wildlife resource, recreational activities, and the entire downstream river ecology. We agree with the Corps that further consideration of this alternative be deferred, or even better dropped.

The 130,000 feet of bank stabilization for an area being considered for national designation as a recreational river, may possibly preclude this designation. This Department has agreed to the construction of a limited number of bank demonstration sites on the reach of river downstream from Gavins Point Dam. Upon completion of these structures, they are to be assessed as to their physical and biological effects. Until this evaluation has been completed, we must withhold any approval concerning

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features of this type. Provisions for public access to the structure areas should be provided.

Another major concern with the demonstration sites, is when do they cease being demonstrations and become full blown projects. Congressional approval of in excess of 20 sites in North Dakota protecting 80% of an open river reach cannot be labeled demonstration.

Bank stabilization demonstration projects should be staged to provide adequate time to evaluate their compatibility with the recreational river designation.

With industrial, irrigation, municipal and miscellaneous depletions on the rise and causing declining stream flow, the need for extensive bank stabilization, contrary to your statement in the draft which lacks substantiation, should be alleviated.

Areas designated under the Oahe-Big Bend mitigation plan, (west unit of the Vermillion area, and the Hog Island area), should be acquired under the mitigation plan. These areas will be compatible with the recreational river.

This Department finds the recreational river proposal generally complete and well represented. However, one of our major concerns is the degree and magnitude of protection native timber along the river will receive under this designation. The DEIS recognized that an "indirect effect of bank stabilization may well be further replacement of woodland by more profitable cropland". The National Recreation River proposal indicates easement protection will generally be limited to within 100 feet of the river bank. We believe that all existing native timber adjoining the river should be afforded protection from destruction. Anything short of this action is not consistent with the objective of maintaining the natural character of the river. Unless all native timber is provided some type of protection, the statement on page E-7-12 of the technical report regarding mitigation is not acceptable.

Insurance that any bank stabilization structure is compatible with the recreational river proposal, each structure should be approved by the appropriate local and state agencies, the U.S. Fish and Wildlife Service and the Bureau of Outdoor Recreation. The Draft should address a review mechanism for the final selection and evaluation of stabilization structures.

In addition, recreation easements on either side of Clay County State Recreation area are needed to protect existing lands and facilities. The size of the recreation easements could vary but it would be desirable to cover an area 3,000 feet east and 3,000 feet west of Clay County Recreation area with a depth of 300 to 2,000 feet.

Recreation easements would provide lands for hiking and nature trails,

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and possibly equestrian trails, if enough lands are secured. Trails of any kind are in very short supply in the region.

We suggest that restoration of trophy northern pike fishing be retained in the plans, and that funds be made available to prepare a detail plan to accomplish the goals of:

1. Re-vegetate denuded shoreline for adequate forage fish production.
2. Establish selected subimpoundments on eastern, low sediment yielding tributaries of Lake Oahe, Lake Sharpe and/or Francis Case, for producing badly needed panfish habitat and fishing as well as maintaining brood stock populations of northern pike.
3. Establish a new hatchery complex below Oahe Dam to provide fingerling stocks necessary to maintain trophy northern pike and paddlefish in Lake Oahe, Lake Sharpe, Francis Case and Lewis and Clark. The production of coldwater species could also accomplish, and the hatchery could provide the necessary stocks to maintain coldwater species found suitable by current research of the Department of Game, Fish and Parks.
4. Produce and maintain harvestable paddlefish populations in Lake Sharpe and Francis Case. The reproduction of these fishes is now limited to river areas below Fort Randall Dam due to the construction of the mainstem reservoirs in South Dakota.

It is recognized that fishing on the mainstem reservoirs can be improved by development of the plans purpose in the DEIS or by suggested modifications of those plans. The Department of Game, Fish and Parks is, however, besieged by serious money problems and is not able to commit itself to funding any portions of those plans. We believe that the perpetuation of the paddlefish in reservoirs where spawning habitat has been eliminated is a sole responsibility of the Corps of Engineers. The cost share of facility construction, operation and maintenance costs of the other portions of the proposed or modified plans will have to be analyzed and worked out when developed.

South Dakota has already sacrificed a great deal of its riverine habitat to development of the mainstem reservoirs. It could well be that we have given enough, especially when one considers that damages done to wildlife have never been mitigated. With substantial future water depletions foreseen, it may be well to give serious consideration to "No Federal Action" or "do nothing" in regard to power generation, flood control, etc. Exceptions to this "do nothing" alternative, should be considered in areas where the Corps should compensate for the adverse impacts they have had on fisheries, as suggested, and in promotion of

Brigadier General William E. Read
June 21, 1977

the recreation river, and in mitigation for the Oahe and Big Bend
reservoirs.

We appreciate the opportunity to comment and review the Draft
documents.

Sincerely,

for *David L. Thompson*
Jack Merwin
Secretary

JM/JK/as

GREGORY COUNTY PUMPED STORAGE SITE WATER CORPORATION

OFFICERS:

CATHY WERNKE, PRESIDENT
RON HARTOG, VICE-PRESIDENT
EDWARD HAINES, SECRETARY
T.C. LILLIBRIDGE, TREASURER

February 8, 1977

ADDRESS

513 LOGAN STREET
GREGORY, SOUTH DAKOTA 57533
Phone: 605-835-4251

Brigadier General William E. Read, U.S. Army
Division Engineer
Missouri River Division
Corp of Engineers
Post Office Box 103 Downtown Station
Omaha, Nebraska 68101

RE: GREGORY COUNTY PUMPED STORAGE SITE

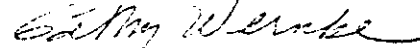
Dear General Read:

Enclosed herewith is the original copy of A Resolution signed by the Chairman of the West River Conservancy Sub-District of Philip, South Dakota, in respect to the assurance on water supply, regarding the request to the Corps of Engineers, U. S. Army, to include 1200 acre feet of water supply storage daily for water supply needs at the Pumped Storage Site proposed near Lucas, in Gregory County, South Dakota.

This letter of intent conveying to the Corps of Engineers the assurance of the West River Conservancy Sub-District that said Sub-District, or other legal entities of State Government, will contract for repayment of the cost allocated to the water supply requested, in accordance with the provisions of the Water Supply Act of 1958, as amended, is being submitted to your Office through the Gregory County Pumped Storage Site Water Corporation, being a non-profit corporation organized in Gregory County, South Dakota, to pursue the matter of this request for the beneficial use of water for Gregory and Tripp Counties, South Dakota, and possibly parts of Boyd and Keya Paha Counties of Nebraska.

Your attention to and consideration of our request contained in this Resolution will be greatly appreciated.

SINCERELY YOURS,



CATHY WERNKE, CHAIRMAN
GREGORY COUNTY PUMPED STORAGE
SITE WATER CORPORATION

cc: Harry F. Mumma, Colonel, U. S. Army
Corps of Engineers
Post Office Box 103 Downtown Station
Omaha, Nebraska 68101

DIRECTORS:

Wesley Dappen, Earl Gray, LeRoy Smith, Bob Sperl, Joe Stars

WEST RIVER CONSERVANCY SUB-DISTRICT
Philip, South Dakota

RESOLUTION

ASSURANCE ON WATER SUPPLY

WHEREAS, under the provisions of the Water Supply Act of 1958 (Title III, P.L. 85-500), as amended by Section 10 of P.L. 87-88, approved July 20, 1961, water supply storage for municipal or industrial and other uses may be included in any reservoir project planned by the Corps of Engineers, provided that in any reservoir project planned by the Corps of Engineers, provided that before construction or modification of any project including water supply provisions for present demand is initiated, State or local interest shall agree to pay for the cost of such provisions, and provided further that not to exceed 30 percentum of the total estimated cost of any project may be allocated to anticipated future demands where State or local interest give reasonable assurances, and there is reasonable evidence, that such demand for the use of such storage will be made within a period of time which will permit paying out the cost allocated to water supply within the life of the project; and

WHEREAS, the provisions of the Water Supply Act of 1958, as amended, are recognized as being applicable to a reservoir under consideration on the pump storage site near Lucas in Gregory County, South Dakota,

WHEREAS, the West River Conservancy Sub-District, considers that the pump storage site in Gregory County is a desirable source of water supply.

NOW, THEREFORE, BE IT RESOLVED BY THE WEST RIVER CONSERVANCY SUB-DISTRICT, Philip, South Dakota:

1. That the West River Conservancy Sub-District is fully cognizant of the provisions of the Water Supply Act of 1958, as amended, and the requirements for payment of the allocated costs of water supply storage, including interest during construction and interest on the unpaid balance, annual operation and maintenance costs and replacement costs.

2. That the Conservancy Sub-District is full cognizant of the plan for the construction and operation of the pump storage project insofar as water supply provisions are concerned and the water supply services to be provided by the project. It agrees that projection of future water needs are concerned in and are consistent with local projections, and final plan for future water supply will be directed toward utilizing the project water supply services at such time as they are available.

3. That the West River Conservancy Sub-District of Philip does hereby request the Corps of Engineers, U.S. Army, to include 1200 acre feet of water supply storage daily for its water supply needs.

4. That the West River Conservancy Sub-District hereby gives assurance that if the pump storage site near Lucas in Gregory County, South Dakota is authorized, it will prior to initiation of construction, contract for repayment and/or will have other legal entities of State government contract for repayment of the cost allocated to water supply in accordance with the provisions of the Water Supply Act of 1958, as amended.

IN WITNESS WHEREOF, THE WEST RIVER CONSERVANCY SUB-DISTRICT of Philip, South Dakota has adopted this Resolution this 31 day of Jan 1977.

Lester E. Heston
Chairman

Attest:

Julia Leason
Secretary

RESOLUTION

In support of Gregory County Pump Storage Unit by the Tripp County Water User District:

WHEREAS the Corps of Engineers has been actively investigating water resource problems, needs and opportunities of the Missouri River; and

WHEREAS, the proposed Gregory County Pump Storage Unit has the installed capacity of generating 1180 million kilowatts of needed electrical power; and

WHEREAS an opportunity exists that could provide Gregory and neighboring counties with domestic municipal and irrigation water; and

WHEREAS, the Tripp County Water User District is nearing final engineering design and has an anticipated completion date of 1977 on a rather large rural water distribution system with ground water as their sole source of water.

Now, Therefore, be it RESOLVED that the Tripp County Water User District endorses and supports a proposed multi-purpose Gregory County pump storage unit that would supply Missouri River water for rural and municipal use in water short areas; and

BE IT FURTHER RESOLVED that the Water User District be considered as a potential user of Missouri River water if costs and delivery conditions were equivalent to their existing ground water supply.

ATTEST:

Dale Waters

Martin Jorgensen, Sec. R.

SEND TO: Harry F. Mumma, Colonel
Corps of Engineers
Missouri River Division
Box 103
Downtown Station
Omaha, Nebraska 68101

R E S O L U T I O N

BE IT RESOLVED that the Clay County Commissioners hereby approve the concept of the U. S. Army Corps of Engineers proposal, to designate the Missouri River from Gavins Point Dam to Ponca State Park as a National Recreation River, in the national system of wild and scenic rivers; and as a multi-purpose plan to include bank stabilisation, recreation access and protection of natural scenic and historical values, as authorized by the Wild and Scenic Rivers Act, P. L. 90-542 of October 2, 1968.


Dated at Vermillion, South Dakota this 3rd day of November, 1976

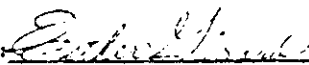
Commissioner Cotton moved the adoption of the foregoing resolution;

Motion seconded by Commissioner Peterson.

ROLL CALL: Dale Peterson-aye, Connie C. Cotton-aye, Daniel Bylander-aye.

Upon which voting the above resolution was passed and adopted.


Daniel Bylander, Chairman
Board of County Commissioners
Clay County, South Dakota

ATTEST: 
Esther Girard
County Auditor
Clay County, South Dakota

BASIN ELECTRIC POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58501
PHONE 701-223-0441 TWX 910-677-2342

President
C. R.
Thiessen

March 21, 1977

Vice
President
Clarence
Welander

Secretary
Treasurer
Dennis
Lindberg

Assistant
Secretary
Andrew
Mork

•
Directors
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Heth
Beulah, N. D.

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J. William
Keller
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Odebolt
Iowa

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S. D.

Andrew C.
Mork
Mandan
N. D.

C. R.
Thiessen
Lambert
Mont

Clarence
Welander
Fullerton
N. D.

•
Manager
James L.
Grahl

Mr. Gus J. Karabatsos, Chief
Planning Division, Department of
the Army, Missouri River Division
Corps of Engineers
Post Office Box 3, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

Hydro Electric Power Plants

We appreciate the opportunity to review the draft environmental statement concerning certain additions and modifications being proposed for the Missouri River and its dams. In reviewing the draft statement, we have several areas of concern.

1. We note that 457 megawatts of generation are proposed at Fort Peck and Garrison. We note on page IV-23, that certain corridors for transmission are delineated. With the above amount of generation being planned for North Dakota, it would seem necessary to define additional corridors between North and South Dakota as this continues to be a critical area relative to power transmission stability considerations.

2. In paragraph 4.36 on page IV-15, you address water intake problems in the 75 mile reach below Garrison. Based on the information given, it would appear that there will not be a problem regarding intake water levels at our Leland Olds power plant provided that the river level does not drop below 1,661 ft. above mean sea level for extended periods of time. If the river level at the Leland Olds Station were to stay below 1,661 ft. above MSL for extended periods, it would be necessary to do some dredging in the river at the intake structure and some modifications to the existing intake structure. However, when the hydro power additions have been authorized, we feel it prudent and necessary to evaluate flows at our intake structures to determine if any adverse impact alleviation action will be required due to either low water levels, erosion, or deposition of silt.

3. We would like to express our support to the hydro power additions including the additions at Fort Peck and Garrison, as well as the Gregory County pumped storage facilities. With the increasing concerns about our world's dwindling supply of energy, particularly fossil fuels,



Mr. Gus J. Karabatsos

March 21, 1977

it becomes increasingly important that we develop our self-renewing, clean hydro resources to the maximum extent feasible to meet our vital energy requirements.

Please keep us advised of the status of the development of hydro resources as they progress. Thank you.

Sincerely yours,



George C. Paraskeva, P.E.

EQ
bbb



National Wildlife Federation

1412 16TH ST., N.W., WASHINGTON, D.C. 20036

Phone 202-797-6800

March 23, 1977

General William L. Read
Missouri River Division
U.S. Corps of Engineers
215 North 17th Street
Omaha, Nebraska 68102

Dear General Read:

The National Wildlife Federation staff has reviewed your agency's draft environmental statement for developmental work on the Missouri River in Montana, the Dakotas and Nebraska, also known as the "umbrella plan." The following are our comments relative to the components of this plan.

The Federation requested information from the U.S. Fish and Wildlife Service on its initial review and comments on the plan which were contained in a letter to you dated January 12, 1977. We note that the FWS specified that points made in that letter did not constitute its official analysis report as required under the Fish and Wildlife Coordination Act; but we do wish to state that we support these preliminary comments by the FWS. I might also note that the Federation is not constrained by limitations of that act on the parameters of our comments.

Bank Stabilization: Control techniques designed to reduce or eliminate river bank erosion as depicted and described in the DEIS are certainly worthy of consideration and possible use where appropriate in any river protection program. Certainly these techniques would have been much more acceptable environmentally on numerous other Corps projects dealing with bank protection.

However, since these erosion control techniques are still experimental in nature and remain yet in the demonstration and analysis stage, the Federation questions the wisdom of including these structures in the development program until their full effect on the Missouri River fishery is known. The Federation also questions the implication by the Corps that such structures can be emplaced in the Missouri River between Yankton and Ponca State Park without affecting the status of the river under criteria of the Wild and Scenic Rivers Act.

While bank erosion and shifting of the main river channel below Gavins Point Dam could be expected to continue to at least some degree under normal operating discharges from that dam, the Federation believes that accelerated discharges during the past two summers are largely responsible for accelerated bank erosion and damage to adjoining croplands. This problem must be addressed.

National Wildlife Federation

The Federation continues to be alarmed over damage to the shoreline at the Karl E. Mundt National Wildlife Refuge and would be willing to confer with the Corps at any time on possible remedies which would be environmentally acceptable.

The Federation also believes that bank stabilization measures which will result in the conversion of river fringe woodlands to cultivated crops must be dealt with by the Corps in its overall mitigation plan. Although this is an indirect loss, it is nonetheless a direct result of river alterations resulting from the umbrella plan.

Hydro-Power Generation Additions: The proposed developments at Fort Peck and Garrison Dams are of greatest concern to the Federation since both sport fisheries and water-related recreation will be impacted severely as a result.

As the Corps' DEIS points out, the increased discharges will perform a scouring effect for up to 50 miles downstream from Garrison Dam and for at least 8 miles below Fort Peck Dam. The result will be the destruction of fishing areas as well as fish reproduction and decline of benthic organisms needed by fish therein.

While the Corps has, in the section of the DEIS dealing with the northern pike rearing ponds, quantified dollar benefits expected from that part of the plan, we have been unable to find a detailed accounting of dollar losses to be expected from the plan's impacts on the sport fishery, water-related recreation, riparian wildlife habitat and water pumping operations associated with the developments proposed below these two dams.

The Federation questions the advisability of adding turbine units at these two dams without full consideration being given to pumped-storage units as viable alternatives. We accept the Corps' proposal for a pumped storage unit in Gregory County as the alternative producing the least adverse environmental impacts but cannot accept the present plans for generating additional hydro-power at Fort Peck Dam and Garrison Dam as being environmentally acceptable.

Recreation River Proposal: The Federation supports Corps efforts to have the Missouri River from Yankton to Ponca State Park designated as a National Recreation River with the attendant protection and development as described, with the exception of the bank stabilization measures proposed. We reiterate that these measures are yet unproven with regard to their effects on the river's fishery. Until such measures have been fully tested and analyzed, we cannot accept them. Again, we question whether installation of these measures would allow qualification of that part of the Missouri River as a recreational river under existing federal law.

Northern Pike Rearing Ponds: We have noted that present mainstem reservoirs behaved much the same as newer reservoirs in other parts of the country so far as fish reproduction and growth is concerned. Shortly after impoundment, natural reproduction increased dramatically, accompanied by almost phenomenal growth which produced an excellent sport fishery, particularly for northern pike. After 10 or 12 years decreases in reproduction, slower growth and shifts to other species become apparent. The point is that the habitat for the northern pike has generally declined and we question whether a pike fishery of national significance can be re-established simply through


National Wildlife Federation

the annual release of 5 million fingerlings. It is interesting that fishery biologists of the South Dakota Department of Game, Fish and Parks conducted exhaustive studies on Fort Randall Reservoir in the mid-1950's and concluded that an ample brood stock of preferred game fish was present in the Missouri River and recommended against any stocking of the mainstem reservoirs.

The Federation, in conclusion, asks that the questions we have addressed herein be given full consideration by the Corps in its development of a final environmental impact statement and that alternatives suggested be given full attention and analysis in the FEIS.

The Federation continues to be concerned that such environmental values as the sport fishery below the mainstem dams with its attendant multi-million dollar recreational investment may be seriously damaged by parts of the present plan. We stress that every effort must be made to protect for the future the remnant free-flowing Missouri River bottomlands and their associated wildlife values and that all environmentally acceptable alternatives to power generation as proposed at Fort Peck and Garrison Dam be given full and complete consideration.

Sincerely,



THOMAS L. KIMBALL
Executive Vice President

cc: C. Griffith, NWF Reg. Executive, Walter Hoff, NWF Reg. Director,
North Dakota Wildlife Federation, Nebraska Wildlife Federation,
South Dakota Wildlife Federation, Montana Wildlife Federation.



IN REPLY REFER TO:

ENV

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JUL 6 1977

Brigadier General William E. Read
Division Engineer
Missouri River Division
U. S. Army Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

This letter provides U. S. Fish and Wildlife Service comments on your Draft Technical Report (Umbrella Study, Appendix 1) Missouri River, South Dakota, Nebraska, North Dakota, and Montana, dated January 1977. Our response is provided as requested in your letter of February 9, 1977. This is not our official report as provided for under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). We are unable to provide an official Fish and Wildlife Coordination Act report on this study because of insufficient project data and inadequate lead time for thorough review. We request, however, this letter accompany your Technical Report and Tentative Recommendations Report when they are forwarded for review and approval consideration, and submission to Congress.

Please note this letter presents a general discussion of our areas of concern. Appended to this letter are more detailed comments on specific sections of the Draft Technical Report (DTR).

Approximately 1.2 million acres of land and irreplaceable river bottom habitat have been destroyed as the result of inundation by the six main stem reservoirs. Of the original 1,039 miles of Missouri River between Fort Peck, Montana, and Sioux City, Iowa, only about 400 miles of open river remain, and even these reaches have been modified by changes in flow regime. An analysis of project features proposed in the DTR and their relationships and impacts on fish and wildlife resources in remaining open reaches of the Missouri River is cause for major concern.

HYDROPOWER

Fort Peck

Anticipated project impacts resulting from proposed hydropower peaking operations include serious degradation of aquatic resources in the Missouri River, Montana and North Dakota.

Two hydropower alternatives at Fort Peck Dam are considered in the document: (1) a 185-megawatt power addition with reregulation dam 8 miles downstream (Range 4), and (2) a 185-megawatt power addition without reregulation. A third alternative was identified earlier by the Corps of Engineers and included a 185-megawatt power addition with a reregulation dam 5 miles downstream (Range 3). A Fish and Wildlife Service analysis of these three alternatives set forth in a previous planning aid letter concluded that the third alternative described above had the least adverse effect on fish and wildlife resources.

Our planning aid letter also concluded that the Range 4 reregulation alternative would not be opposed by the Fish and Wildlife Service if lands acquired for the project are managed for wildlife with operation and maintenance funds provided as a cost to the project. In addition the letter documented a need for acquisition of an additional amount of land to offset remaining project-caused wildlife losses. It also recommended that all listed fish and wildlife resource mitigation measures be included as a part of any request for authorization to construct additional hydropower facilities at Fort Peck.

Our review of information in the DTR supporting the selected Range 4 hydropower addition at Fort Peck reveals that operation and maintenance monies required for fish and wildlife management programs were not identified as project-related costs. Your regulation EP 1165-2-1 dated January 10, 1975, Section 20-2, indicates they should be project costs.

Although the need for additional mitigation lands was included, identification of lands above the reservoir fluctuation zone for wildlife management purposes was omitted. In addition, there remains a 69-acre discrepancy which should be clarified between the Corps' figures and our analyses of project-caused impacts for the Range 4 alternative.

In view of the significant loss of fish and wildlife resources and associated habitat, we oppose construction of hydropower features as currently planned at Fort Peck Dam.

Garrison

Proposed additional hydropower units at Garrison Dam will have a major impact on the downstream fishery. The "pike hole" area and tailrace fishery will be destroyed, and significant degradation of the river fishery will occur for 30 miles downstream.

Impacts on the Garrison National Fish Hatchery will inhibit efficient hatchery operation. Anticipated impacts that the rise in ground-water levels will have on the hatchery and hatchery operations are as follows: frost heave of the piping system; inability of ponds to be dried out

and discad; less effective pond drainage; inundation of portions of the domestic sewer system and all four outside kettles; and settlement and related material stresses to all foundations, piping, and other underground structural components.

The recommended mitigation effort described in the report for the proposed peaking operation will not prevent damages to the fish hatchery. Service hydrologists foresee impacts to the National Fish Hatchery as more severe than those recognized by the Corps. This was pointed out in previous correspondence to you.

In view of the significant loss of fish and wildlife resources and associated habitat, we oppose construction of hydropower features at Garrison Dam as currently planned.

Gregory County

The Gregory County pumped-storage project appears to be acceptable from a fish and wildlife standpoint, provided fish screening devices and proper energy dissipators are used in the afterbay-intake area.

Fort Randall

We agree that additional hydropower units at Fort Randall Dam should be deferred. Additional units at the dam would have adverse impacts on fish and wildlife resources equal to or greater than those anticipated at Fort Peck and Garrison.

BANK STABILIZATION

We believe the portion of the DTR covering bank stabilization should be expanded to include a more detailed analysis of alternatives. Special emphasis should be given to environmental considerations and providing additional information on the economic analysis of the selected plan and alternatives. Our observation of past bank stabilization structural control methods leads us to believe they are self-perpetuating. That is, after one set of structures is completed, those structures divert flows to other areas, resulting in new erosion and further bank stabilization. Such a situation has occurred on the Sacramento River in northern California. In 1961, the Corps of Engineers started work on Phase I of the Sacramento River Bank Protection project which encompassed 80 miles of bank protection. This phase was completed in 1974 but apparently was insufficient. In 1975, work started on Phase II which calls for an additional 77 miles of bank protection.

Another consequence of such bank stabilization structures relates to the clearing of adjacent land. Throughout the lower Missouri River where such structures have been installed, there are numerous examples

where landowners have cleared riparian timber adjacent to the structures until very little or no timber remains. This clearing, coupled with the adverse impact of bank stabilization structures on aquatic habitat, effectively changes a river from a high-value ecosystem to a low-value ditch.

In the past, we agreed to implementation of the Missouri River Bank Stabilization and Demonstration Project without the Corps of Engineers preparing an environmental impact statement. However, this was done with the clear understanding that information gained from that experimental project would be used to make decisions regarding future bank stabilization measures. Moving ahead with extensive stabilization measures before evaluation of the Demonstration Project is premature. Therefore, in view of the obvious need to evaluate impacts of the experimental bank stabilization structures on fish and wildlife resources and the degradation caused by bank stabilization structures to date, the Fish and Wildlife Service opposes all bank stabilization proposed in the Draft Technical Report.

During a November 10, 1976, meeting in Omaha, your staff indicated that approximately 16 million acre-feet of water could be marketed in the future from the Missouri River for irrigation, municipal, and industrial purposes. Should this occur, it will have an effect on the flow regime of the river. It is logical to assume that with less water, there will be less erosion. Thus, bank stabilization would serve its purpose only for a relatively short time at a high environmental and financial cost.

We believe an alternative, based on acquisition of a buffer strip in lieu of bank stabilization structures, is the only assured method for protecting existing fish and wildlife habitat along the Missouri River. By purchasing a strip of land, or trouble spots, the river would have space to meander naturally. This would result in preservation of the existing diverse and valuable riverine ecosystem. In many instances, it also appears to be more economical than the selected plan. Bank protection costs range from \$50 to \$94 per linear foot as shown in the DTR, Appendix 1, Table E-2. Depending on the type of structure used, bank stabilization structures for an acre of land with 400-foot river frontage will cost about \$5,000 to \$9,400 per acre in initial costs. In most instances, this is several times the value of land to be protected. The Corps of Engineers' cost estimate for 7,680 linear feet of intermittent, composite revetment abutting the Karl E. Mundt National Wildlife Refuge is \$585,200. The 1974 purchase price of 780 acres of fee title land within the refuge was \$160,000, or about 27 percent of the cost to stabilize these banks. Therefore, we believe the alternative of land acquisition should be fully discussed in the DTR.

RECREATION RIVER

We certainly agree with the concept of a Recreation River and believe it is needed. However, we are concerned that if all of the proposed bank stabilization structures as presented by the Corps of Engineers during the October 28, 1976, meeting in Grand Island, Nebraska, are constructed, eligibility for Recreation River status would become questionable. To date, there have been no assurances that lands necessary to protect the integrity of the Recreation River will be secured in fee title or by easement prior to construction of bank stabilization structures. Lands should be secured before any bank stabilization structures are built to ensure this feature as an integral part of the project. The previously discussed alternative of acquiring land in fee title and/or by easement as a means to alleviate concerns regarding bank erosion seems more in keeping with the Recreation River concept than the selected alternative of bank stabilization structures. The construction of 100,035 linear feet of revetment, 95,580 linear feet of hardpoints, 97,200 linear feet of low-control structures, and 10,530 linear feet of vane dikes within the Gavins Point Dam to Ponca, Nebraska, reach appears to be incompatible with the Recreation River concept. Most of the bank stabilization work would be accomplished in this most pristine reach of the Missouri River. The absence of bank protection structures is one important reason for this near pristine condition.

We recommend that Recreation River designations also be considered for the following reaches of the Missouri River: Fort Randall Dam to the headwaters of Lewis and Clark Lake, Garrison Dam to the headwaters of Lake Oahe, and Fort Peck Dam to the headwaters of Lake Sakakawea. Within these river reaches, bank stabilization measures should only be implemented after an evaluation of the limited number of bank demonstration projects to determine their biological effects and their influence on Recreation River designation. Consideration should be given to acquiring problem areas in fee and/or easement, or protecting them by other means such as zoning to ensure the future integrity of the river system. Bank demonstration structures deemed appropriate by a "joint team" composed of representatives of the States, Bureau of Outdoor Recreation, Fish and Wildlife Service, and Corps of Engineers should be implemented as a last resort.

FISH-REARING FACILITIES

Based on the following reasons, we believe that benefits claimed for the fish-rearing ponds are overstated. Productivity in these reservoirs is largely controlled by water chemistry and regulated by such factors as geographic location, soils, adjacent vegetal land cover, land use, and other factors affecting or characteristic of the drainage basin. While the reservoirs were filling, an enriching supply of nutrients provided

by leaching action on newly inundated soils stimulated high photosynthetic activity. This ultimately led to high densities of bacteria, benthos, and plankton. This abundant food supply combined with the creation of extensive favorable spawning and nursery habitats (primarily flooded vegetation) for a number of littoral-spawning fishes resulted in a very high survival of young fish. The result was a "population explosion" of some species. After the initial period of high productivity, the abundance of basic food organisms declined as the nutrient supply was depleted. Erosion, slumping, and siltation destroyed spawning and nursery habitats of many littoral-dwelling species. Consequently, fish species either disappeared or population numbers declined.

Water level fluctuations inherent in the current and near future water regime in Lakes Francis Case and Oahe are not expected to be favorable to the production of aquatic plants or the creation of other conditions necessary for littoral-dwelling fishes. For example, present littoral conditions in most of the selected pond sites in Lake Oahe as proposed in the DTR show the continuing destructive effects of wave action, wind erosion, slumping, siltation, and accompanying turbidity. These interacting forces are not favorable to littoral plant establishment and sustained growth. Neither terrestrial nor semiaquatic vegetation has developed to any noticeable extent anywhere along the shore in the littoral area since attainment of full pool conditions in Lake Oahe nearly 10 years ago.

Providing aquatic vegetation will not ensure an increased abundance of forage fishes or northern pike. Extensive beds of natural aquatic and semiaquatic vegetation, for example, have developed in Lake Sharpe where a stable water level has been maintained for over 5 years. There has been no upsurge in populations of either forage fishes or any of the principal littoral-spawning species, including the northern pike, buffalo fishes, or carp. The overall abundance of forage fishes has declined during this period, and there is no evidence of recent successful spawning of northern pike.

On a short-term basis (5 years), successful vegetal growth along the shoreline and littoral area can be expected only under favorable water levels and if costly cultural techniques are employed such as fencing and the application of inorganic fertilizers. Studies conducted by the University of South Dakota indicate that vegetal plots along the shores of these reservoirs were successful only if protected from grazing. The application of inorganic fertilizer stimulated plant growth in some locations. On a longer-term basis, some of the embayments where topography is favorable (gentle slopes with active sedimentation) will become revegetated naturally.

Because of its specialized spawning and nursery requirements, the northern pike virtually disappeared from the Missouri River impoundments

following attainment of a full reservoir system. The development of climax walleye population in five of the six Missouri River Impoundments (sauger predominates in Lewis and Clark Lake) indicates that, independently of water level fluctuations, environmental conditions were favorable for these predatory species. Because of the inherent limited food supply, artificial introductions of another voracious predator such as the northern pike can only result in reduction in the size and quality of the existing walleye populations in Lakes Francis Case and Oahe.

The most viable alternative to rearing ponds proposed for Lakes Francis Case and Oahe appears to be the creation of several subimpoundments or excavated ponds in favorable locations along all of the reservoirs. We recommend that this alternative be investigated in detail by the Corps of Engineers. The objective would be to add a variety of fish and wildlife habitats to supplement the reservoir system. Two examples (as described below) exist of relatively successful fish and wildlife habitats that were created after closure of the main stem dams.

Lake Yankton located below Gavins Point Dam provides a variety of fish species for the angler and, in addition, provides public hunting access to waterfowl concentrations during the fall. It also provides favorable habitat for a variety of birds and mammals that are either seasonal or permanent residents. Several of the prime fish stocks in this subimpoundment are presently being maintained through stocking. However, management techniques could be adopted to assist natural reproduction.

Another area that has developed after closure of the dam is the marsh area below Oahe Dam. This area supports a greatly diversified assemblage of fish, birds, mammals, plants, and trees. Northern pike are able to reproduce in the upper impounded area because of the presence of favorable semiaquatic vegetation. The marsh is also a prime resting and feeding ground for migrating waterfowl and a haven for pheasants, deer, and ducks during storms.

Sites for this alternative should be limited to those that would fill naturally by runoff, yet be free of the influx of chemical or nutrients from agricultural operations. Areas should be 20 acres or larger and provide for a diversified habitat--trees, shrubs, grasses, aquatic and semiaquatic plants. The sites must be fenced to exclude cattle and the encroachment of agriculture. The subimpoundments would be managed primarily for fish production, and the key to the success of this type of habitat management is continued maintenance of conditions that are in harmony with the basic biological requirements of the desired species.

A second alternative to the rearing ponds is to augment the fish forage base through reestablishment of littoral vegetation. This is a modification of the proposed seeding plan for Lakes Oahe and Francis Case.

It calls for the fencing of protected embayments that are known to be productive fish-spawning and nursery grounds and the seeding and/or sprigging along the shore during years of low water. Protected littoral areas with some form of vegetation or vegetative substrate are required for the successful spawning and early life survival of most of the warm water fishes in the Missouri River impoundments. Sites selected for fencing and seeding should be relatively free of slumping and sedimentation from runoff or wave action. Seeding and/or sprigging would be done only in years when low water levels were anticipated so that maximum survival and growth could be expected. Sites should not be limited to Lakes Oahe and Francis Case but ought to be established wherever and whenever suitable conditions exist in all of the reservoirs.

We recommend consideration of these alternatives.

SUMMARY

The Fish and Wildlife Service's analysis of your Draft Technical Report reveals that many of the proposals, where it has been possible to analyze impacts, will severely degrade fish and wildlife resources. Therefore, the Fish and Wildlife Service, in accordance with its responsibilities under provisions of the Fish and Wildlife Coordination Act, recommends the Corps of Engineers take action on the following items:

1. The deletion of hydropower peaking operations at Fort Peck and Garrison Dams and consideration of less environmentally damaging alternatives such as offstream pumped-storage.
2. Revision of the Draft Technical Report to include information on the need for and location of transmission power lines (see Appendix, page 4).
3. Delay of bank stabilization measures until the effects of the Missouri River Bank Demonstration and Evaluation Project have been assessed on all reaches of the Missouri River including Gavins Point Dam to Ponca, Nebraska.
4. Further consideration of the alternative of buying in fee title and/or leasing land along eroding locations of the Missouri River to provide a buffer strip in lieu of bank stabilization structures.
5. Consideration of open portions of the Missouri River in Montana, North Dakota, and South Dakota for inclusion in the National Recreation River proposal.
6. Consideration of the following alternatives for the proposed fish-rearing ponds at Oahe Reservoir and Lake Francis Case:

- a. The creation of subimpoundments.
- b. The fencing and establishment of vegetation on protected embayments.

We appreciate the opportunity to comment on your Draft Technical Report. A response to our position on the various report proposals will be appreciated, and if there are questions, please contact us.

Sincerely,

Harvey Wilken
 HARVEY WILKEN
 Regional Director

Attachment

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APPENDIX

This appendix provides the U. S. Fish and Wildlife Service's detailed comments on specific portions of the Draft Technical Report.

Page B-56, paragraph 123. It is indicated that without stabilization measures aimed specifically at river island protection, "... the remaining island areas will ultimately be lost, to be replaced by sandbars, marshes, and water." Although this may be a true statement, it is questionable in light of projected future flow depletions. We recommend the following language be added:

However, it should be recognized that sandbars, marshes, and water are important riverine habitats for fish and wildlife resources associated with the Missouri River. Hundreds of thousands of acres of valuable fish and wildlife habitat, marshes, and sandbars have been destroyed due to inundation by the main stem dams and by past channelization activities in the lower Missouri River.

Page B-70, paragraph 167. We suggest the following be included in paragraph 167:

The Director, U. S. Fish and Wildlife Service, under authorities contained in the Endangered Species Act of 1973 (16 U.S.C. 1531-1543) issued notice of his intent in the Federal Register, Vol. 41, No. 134, Monday, July 12, 1976, of amending Part 17, Subchapter B of Chapter 1, Title 50 of the Code of Federal Regulations, to include the Bald Eagle (*Haliaeetus leucocephalus*) as Endangered in the conterminous 48 States of the United States, except in the States of Washington, Oregon, Minnesota, Wisconsin, and Michigan where the species would be listed as Threatened. If the proposed rulemaking is finalized, Critical Habitat (pursuant to Section 7 of the Endangered Species Act of 1973) for the species may be determined. Several areas encompassed by this project would need to be considered in these determinations.

Page C-26. This section entitled, "Effects of Depletions on the Environment," does not contain any discussion of future Missouri River flow depletions and the effect on erosion rates. This omission should be corrected. We believe that with reduced flows there will be less erosion. Thus, bank stabilization features would only serve their purpose for a relatively short period of time. Also, there should be a reduced need for such features in the future.

Page D-14, paragraph 60. The report indicates that consideration was given to Federal purchase of a buffer strip in lieu of bank stabilization. However, "This option was dropped because it does not solve the basic problem of continuing loss of irreplaceable land resources and lacks any vestige of public acceptability." By purchasing a strip of land or trouble spots, the river would have space to meander naturally. Some of the purchased land would erode, but eventually the river bank would stabilize. We believe the onetime expenditure of public tax money for the purchase of this land would be less than the cost involved in maintaining stabilization structures for the life of the project. Future river flow depletions and the resultant likelihood of decreased bank erosion rates also must be considered.

Page D-22, paragraph 80. We disagree with the last sentence in the paragraph which states, "Lack of bank stabilization, for example, will not preserve the river in its present form, rather it will preserve a regime of continuing change--for the worse, in this instance." Whether there will be a net change for the worse is debatable, and we believe the tag end of that sentence should be deleted. If retained, it should be substantiated. It has not been demonstrated that bank stabilization structures will benefit fish and wildlife or the natural environment, nor has it been demonstrated that bank stabilization is the only justifiable method of handling bank erosion. The "continuing change" that will occur is the naturally occurring riverine processes including the erosion and deposition of material within the river banks. Such processes will be of benefit to fish and wildlife resources through the formation of shallow water areas, marshes, and sandbars.

Page D-68, paragraph 175. The discussion of Plan B indicates that the information regarding transmissibility tests have not been made "but are proposed during advance design studies." This data is necessary before engineering conclusions can be reached concerning impacts on the Garrison National Fish Hatchery.

Page D-97, paragraph 205. With more intensive recreation and industrial growth expected, there will be competition between these uses and wildlife resources that utilize riverine habitat of the Missouri River.

Page E-1, paragraph 3. The meaning of the last sentence is not clear where it is stated, "... the plan will be adjusted at the time of construction to insure compatibility with prevailing field conditions." Does this mean that additional sites could be selected, or the specific sites will be selected, or both of these actions?

Page E-2, paragraph 4. We question the conclusion made in the first sentence. We believe that with less water there will be less high bank erosion. Problem areas today may not be problem areas after future depletions occur. It is further stated, "... very high rates of

erosion still occur at specific locations during low flow periods." This needs further substantiation. For example, the flow regimes that will result in high erosion rates should be explained, together with the extent of erosion expected in the future. Also, continued erosion during low flow and only significant, onetime erosion from the high-power releases should be substantiated. It is indicated that fish migration could be in jeopardy with depleted flows. Although it is indicated flows will be so low that fish may be unable to migrate, high bank erosion will occur. The logic for this should be clarified. The above conditions coupled with ongoing channel bed degradation from Gavins Point Dam (7.5 feet since closure of the dam) to Ponca State Park (3 feet since closure of the dam), indicate bank stabilization would serve its purpose for only a short time.

Page E-5, paragraph 7. It is indicated the most feasible plan is to take care of any threatened area as the need develops from year to year. We believe the end result of such a piecemeal bank stabilization process will be stabilization (channelization) of the entire river.

Page E-7, paragraph 12. It is indicated that no mitigative measures are needed as a result of bank protection works. This is not an accurate statement. The need for mitigation measures is unknown because effects have not been evaluated. The Fish and Wildlife Service will not be able to fulfill legal obligations under the Fish and Wildlife Coordination Act regarding the need for mitigation until Demonstration Study structures have been installed and their impacts on fish and wildlife resources have been analyzed.

Page E-8, paragraph 14. It is stated, "The significant reduction in the rate at which Missouri River Valley lands erode into the river is considered the most significant impact of the bank protection plan." This is debatable. Effects on the riverine environment resulting from implementation of the bank stabilization plan can be considered equally significant.

Page E-12, paragraph 21. You indicate that windrowed rock could become feeding sites for predators and hunting sites for man. We believe you should elaborate on what kind of hunting these sites will provide.

We do not agree your proposed structures will not diminish the water area of the Missouri River nor materially alter the configuration of the river within its high banks as also stated in paragraph 21. We believe that only time and a thorough evaluation of the demonstration sites could provide data to support such a statement.

Page E-6, Table E-2. Bank protection costs range from \$50 to \$94 per linear foot. Depending on the type of structure used, an acre of land with 400 feet of river frontage will cost about \$5,000 to \$9,400 to

protect. This is several times the value of the land to be protected in most instances. We believe it would be more in the public interest to purchase in fee title those areas that are presently eroding and devote these lands to public programs rather than spending public tax money to protect private interests on private lands.

Page E-67, paragraph 122. The sixth sentence should be deleted since a seashore scene cannot be compared to the Missouri River.

Page E-69, paragraph 127. The entire paragraph should be rewritten since the Corps failed to use the Habitat Evaluation Procedures correctly. While the 16-mile stretch below the Garrison Dam will lose 90 percent of its value, the value of that stretch is higher than any other portion of the river. It is not appropriate to average this value with that of other river stretches.

Page E-71, paragraph 128. It should be clarified that the Corps of Engineers, without consultation with State fish and game agencies and the Fish and Wildlife Service, made the decision that 285 acres of bottomland hardwoods need to be purchased for compensation of wildlife losses. The acquisition and management of 285 acres will not adequately compensate for these losses.

Page E-72, paragraph 132. When test wells are in place and ground-water fluctuations known, will project planning be changed accordingly to prevent losses to the Riverdale Game Management Area? This question should be answered.

Page E-73, paragraph 133. The first sentence should be changed to read, "The overall effect of peaking power releases on terrestrial wildlife and its habitat is not known at this time due to lack of pertinent data."

Page E-78, paragraph 148. The statement is made that, "The Bureau does not regard as feasible an in-depth examination of alternative transmission schemes until the source of generation has been authorized by Congress." We suggest that the following statement be added to this paragraph: "The U. S. Fish and Wildlife Service believes that the investigation of hydropower alternatives cannot be separated from the investigation of transmission facilities. Both issues are interrelated and should be considered jointly."

Page E-79. We recommend that the section entitled "On-site Rearing Ponds" be clarified. For instance, there is no mention of northern pike fingerling size. It may be possible to produce 5 million 1-inch fish in the 12 rearing ponds; however, 5 million 6-inch northern pike would require many more ponds. Also, no one knows for sure if 5 million fish will produce a fishable population in a large body of water like Oahe reservoir. It is highly unlikely that 180,000 additional fisherman-days annually will result from the stocking.

We question the success of planting seed in the late fall and winter and expecting plant growth the following spring, especially since the reservoir usually reaches peak elevation in May or June and then starts to decline. Seed planting must be done in July and August. If moisture and soil fertility is adequate, there will be sufficient vegetative growth by fall. The value of 300 acres of vegetation designed to sustain trophy fish production in a reservoir like Oahe with a shoreline of 2,250 miles is questionable. The most that can be expected is localized benefits.

The following issues should be addressed in your discussion regarding rearing ponds:

1. Will planted and seeded areas be protected from cattle grazing?
2. Specifically, what semiaquatic plants would be seeded or planted, and would they be fertilized?
3. How will the efficacy of stocking be assessed, and who will make the assessment?
4. Who will manage the program at the end of the 5-year repetitive seeding and stocking program?
5. Would the introduction and possible reestablishment of northern pike in Lake Oahe eliminate present populations of cold-water species and preclude chances of establishing cold-water species in the future?
6. After extensive experimentation, Russian scientists concluded that the stocking of pike in the Volga River reservoirs was "uneconomical" and selected less specialized species such as carp. Why would the economics (cost/benefit ratio) be favorable towards the introduction of northern pike in the two selected Missouri River reservoirs?
7. Have you considered establishing subimpoundments within these reservoirs? Subimpoundments would provide more diversified habitats and ultimately more fish and wildlife benefits than proposed fish-rearing ponds.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
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JUL 13 1977

Ref: 8W-EE
D-COE-J36009-00

Brigadier General William E. Read
Commander, Omaha Division
U.S. Army Corps of Engineers
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Dear General Read:

The Region VIII office of the Environmental Protection Agency has completed its review of the Missouri River, South Dakota, Nebraska, North Dakota, and Montana, draft environmental impact statement (EIS). The following comments are presented for your consideration. These comments are overdue partly because the important Appendix I-Technical Report was not made available to EPA until May 6, 1977.

I. GENERAL

In our review capacity, EPA has actively encouraged an overall or "comprehensive" evaluation of the Missouri River and its main-stem reservoirs. It was not until our meeting with Omaha division staff members on May 6, 1977, that we knew of the COE "Umbrella Study." This study attempts to take a more thorough long-range comprehensive and integrated look at various plans and changing multipurpose activities facing the Missouri River main-stem system than the EIS. We applaud your effort and feel that such an approach is essential and timely. There are a number of issues, however, that need a broadening of scope of both the "Umbrella Study" and EIS effort. The Corps recognizes this as well, in such evaluations as the section on "Unfinished Business" in the technical report, but it is EPA's contention that the scope of the study has not gone far enough. The following are some of the concerns that need to be addressed under this study.

1. Energy Studies - Hydropower

The umbrella study and the EIS have demonstrated a plan selection for additional hydropower development on three main-stem reservoirs-- Ft. Peck, Garrison, and Lake Sharpe. Principles of the Water Resources Council have been generally followed, demonstrating a positive B/C ratio for these projects. These particular projects were selected from a set

of larger potential projects and represent a contribution to a defined set of energy demands for the entire MARCA power net region. The final proposals are treated as independent, simultaneous projects to provide added power at favorable benefit/cost levels.

Your analysis suggests that hydropower generation is gradually shifting to providing peaking power versus base load power. It is apparent that fossil-fuel steam electric power plant generation using the immense coal reserves of the Northern Great Plains will be supplying the bulk of base load increases in the future in the MARCA region and in areas beyond as well. Your analysis needs to recognize formally that which is already being done in practice--a continuing demand to use the existing main-stem Missouri River plans to provide more flexible hydroelectric facilities for peaking power. At the same time, as depletions of the Missouri River flow increase, less total electricity can be generated from the hydroelectric plants.

Neither the technical report nor the EIS provides a very clear understanding of the role of publicly generated hydroelectric power in the larger public/private energy net. Your study should define clearly how the existing facilities for electrical generation tie in with the larger system. For instance, what percentage of peaking power in the system is provided by main-stem Missouri facilities? What percentage could be provided over time, assuming the projected depletion rates and maximization of power production? What, in turn, are the environmental consequences?

In conjunction with this relationship of peaking and base load rates, how valuable is the peaking power to the system? Will future rate structures gradually reflect the increasing costs of producing peaking power over base load power? It seems fair to suggest that, if the U.S. government is constructing and operating the less efficient (from a capacity factor standpoint) peaking facilities and supplying it to private utility firms, some readjustment of rate structure will eventually be forthcoming that could raise the value of the hydroelectric facilities.

A final point to be made in regard to the umbrella study and the EIS evaluation of new hydroelectric additions to the Missouri River system is that it did not compare the independent projects against one another. Yet the goal of these separate projects is the same: more peaking power. We recognize that, in the short term, the additional generating units at Ft. Peck and Garrison represent a small net increase in energy, while the pumped storage facility has a greater energy cost. We strongly feel that the projects are comparable; however, as main-stem total energy output drops with increasing depletions in the future, the peaking functions will bring the projects closer together in purpose. A comparison of this kind is very important because environmentally there is a significant difference in the pumped storage projects versus additional generation-reregulation facilities. It is EPA's opinion that the environmental impacts of the Ft. Peck and Garrison proposals are severe and continuing;

the Gregory County pumped storage project appears to be environmentally acceptable with certain mitigating features.

A comparison of this kind would also demonstrate that the marginal amount of peaking energy from the additional generating units is small by comparison to the Gregory County pumped storage facility. The present rate structures, cooperative arrangements between utilities, etc., constrain what options are available in the very near future, but it is the longer-term implications that should be reviewed in this study.

If such a comparison were to be made, the Gregory County facility should be considered the EQ plan in comparison to all the other evaluated demand power alternatives.

2. Navigation Aspects

Although, in other Corps of Engineers reports, navigation use of the Missouri River system has received considerable attention, no substantial analysis of modifications to the navigation system are considered in this EIS except expansion.

EPA has already noted in its comments on the Missouri River Main-Stem Draft EIS the general unprofitability of navigation and associated environmental impacts at present and with additional depletions.

Missouri River navigation presently contributes only 0.6 percent to the total Inland Waterways' commodity movements of 204 billion ton miles. Yet, the commercially navigable 732 miles of Missouri River represent 2.9 percent of the Inland Waterways' System. The Corps of Engineers in the Draft EIS for the Missouri River Bank Stabilization and Navigation Project (BS&W) (April 1976) indicates average annual navigation benefits between Sioux City and St. Louis are \$6,534,000. Annual maintenance for the nine-foot project presently averages \$13,840,000. Clearly, the benefits of navigation do not justify additional expenditures. In addition, the main stem EIS does not indicate the O&M costs attributed to navigation on the lower river. This omission casts further doubts on the effectiveness of continued navigation on the lower river. The main stem EIS is also inconsistent with the BS&W EIS in that the former indicates navigation benefits are worth \$7,383,000 annually, a difference of \$849,000 or more than a 10 percent error in benefit calculations. The environmental impact associated with drawdowns on tributary reservoirs should also be assessed. These include the creation of greater areas of mud flats, downstream stream-bank erosion and/or flooding, lost recreation benefits and possible water quality deterioration.

In light of the proposal to recommend the Gavins Point to Ponca Park stretch of the Missouri River for Wild and Scenic River designation, and the bank stabilization measures proposed, the timing of eventual phaseout of navigation on the Missouri River should be considered in plan formulation. The bank erosion losses identified on pages C-60 through C-75 show an appreciably greater bank erosion rate below Gavin's Point over other area studies due to the higher sustained peak flow rates for maintenance of navigation.

With a change in navigation uses, other multiple uses of the Missouri River, such as power generation, may be improved. It might then become feasible to utilize the reverse-turbine concept on the Fort Randall flood-pool to provide rather large amounts of pumped storage electrical generation.

3. Recreation Uses

The proposed plan to designate the reach from Gavin's Point to Ponca Park is an admirable one. In our review process, we question the suitability of the other remaining segments of the free flowing Missouri River below Ft. Peck, Garrison Dam, and Oahe Dam that fall under this study scope. Stabilization of high bank areas appears to be a common fate for all reaches. Multiple land uses from floodplain woodland and agriculture to urban uses are also common to all of the study segments. It would be beneficial to evaluate these other sections of the Missouri River in a common approach for their respective suitabilities. The situation in the 85-mile segment between Garrison Dam and Oahe Lake is particularly critical, since so little free flowing Missouri River is left in the State of North Dakota. We suggest that your study be expanded in scope to include these river segments as well.

4. Stabilization Efforts

In view of the profoundly changed hydrologic regime of the main-stem Missouri River, some form of highbank stabilization effort appears inevitable for most of the remaining free-flowing Missouri River.

The bank stabilization proposals could be beneficial in some instances. However, their value, as well as adverse impacts, would have to be evaluated on a case-by-case basis. The EIS and technical report do not provide the detail necessary for this type of evaluation. Sediment-erosion dynamics serve an important role in the functioning of aquatic and riverine ecosystems. Reservoir and channel alteration projects have contributed greatly to the impairment or loss of these systems in the Missouri River basin. Additional disruption should carefully weigh the benefits of such actions.

In view of the experimental program being undertaken by the Corps of Engineers under the Streambank Erosion Control Demonstration Act, there appears to be an opportunity to evaluate many unknown factors surrounding the use of these various stabilization techniques. Unfortunately, neither the technical report nor the EIS provides any indication how, or even whether, the Corps will monitor and evaluate these demonstration areas to answer many of the unknowns surrounding the present use of bank stabilization. The following research could determine whether expanded use of these types of stabilizations will have beneficial or adverse effects on other uses of the Missouri River.

a) What effects on fish rearing and the use of streambanks by wildlife will occur with windrow revetments and sand fill revetments?

b) What will occur in areas immediately upstream and downstream of bank stabilized areas from these modifications of the hydrologic regimes? Will these present structures lessen or increase the need for future stabilization activities?

Some bank protection measures, in particular vane dikes, could cause increased channelization when water surface elevation dropped below the top of the dike. In such instances, the water would be diverted around either end of the structure. How could such effects be counter-acted in design?

c) How will a decline in the amount of erosion in the free-flowing river as a result of stabilization affect aquatic species production?

Although the land losses from high bank erosion have received the most attention, very little discussion has been given to the corollary effect occurring in the upper end of the main-stem reservoirs--namely, sediment deposition. Has any consideration been given to the long-term implications of this process? What is the most likely fate of these shallow sediment areas? Could selective dredge and fill activities in these areas create new land areas for farming or woodland habitat? Are there any activities that could help accomplish the end of new lands creation?

5. Fish and Wildlife Development

The U.S. Fish and Wildlife Service is somewhat pessimistic about the likelihood of success of the proposed fish rearing ponds to be established on the main-stem reservoirs. More protection may be warranted for the remaining free-flowing river segments as spawning and rearing areas for the riverine, as well as reservoir, fish species. The recommendations of the USF&WS and State Fish and Game Departments should be carefully considered in developing the final recommendations for Missouri River improvements.

Since this study effort and EIS will result in eventual recommendations to Congress for some major changes in the present management of the Missouri River system, this extra effort we are asking for is warranted since it is the responsibility of the Corps as the principle operating agency for the Missouri River system to develop and analyze such options for the future. Where the U.S. Bureau of Reclamation has a vital role to play in the development and use of energy in the western states, perhaps a joint feasibility study could be coordinated between your respective agencies. The USBR is in the process of completing the "Western Energy Expansion Study." How will the umbrella study recommendations be coordinated with the USBR proposals?

The following general comments address the specifics of the proposed projects under the scope of the Umbrella Project Draft EIS.

II. OTHER ENERGY CONSIDERATIONS

1. The plan should consider the potential impact of peak-load pricing or load management on the demand for generating capacity. Peak-load pricing can motivate consumers to change their consumption patterns. An EPA-sponsored study in Vermont showed that certain peak-load pricing incentives caused residential consumers to shift their peak electricity use from mid-morning to late evening, thereby reducing the overall peak demand for the system.

2. Another alternative or subalternative for Fort Peck and Garrison would be to increase electrical output by increasing turbine efficiencies and rewinding inefficient older generators. Such improvements would have negligible impacts on the environment and present main-stem operation. The USBR has found considerable success with this approach.

3. The evaluation of environmental impacts from proposed energy developments on the Missouri River main stem should consider related transmission lines as well. Obviously, detailed transmission corridor routes cannot and should not be evaluated at this point; rather, the broad approach of discussing development of one or another areas for intensive energy production (such as the area around Garrison Dam) should be evaluated. Given the likely coordination of peaking power hydroelectric systems with base load power plants, what combinations of power plant facilities will minimize the need for new transmission facilities? Such an evaluation should consider likely marketing areas present and future and some indication where transmission facilities may have to be built.

It is stated on page IV-23 that, "although these lines," (i.e., transmission lines) "will create significant environmental effects, assessment cannot be undertaken until alternatives have been defined in detail." Thus, since the environmental impacts associated with transmission lines needed to transport the additional peaking power generated are significant, how could authorization of such activity be proposed when only a fraction

of the environmental impacts have been addressed? It would seem that a joint impact statement addressing all impacts due to the proposed hydroelectric actions is needed as suggested above. The extent of authorization should thus be a request to undertake a joint agency (COE-BOR) feasibility study. It may well be necessary to develop this hydroelectric study as a distinct effort within the Missouri River "Umbrella Study."

4. Fort Peck. There are a number of obvious environmental problems associated with the proposed reregulation structure. The productive, diverse fishery resource that has evolved below the dam will be adversely impacted. More information should be provided on the overall significance of this resource. The EIS should evaluate elimination of the cold water fishery below the dam and its replacement with other fish species below the reregulation structure: What effect would the reregulation and new operational scheme have on spawning fishes?

Unless the terrestrial habitat to be reserved below the reregulation dam is in jeopardy of being lost, its acquisition should not be considered a mitigating feature. There is no mention of any mitigation measures for the rereg structure on the fishery resource in the afterbay or below. Another concern would be the effects of the peaking power operation on stream temperatures in the pool and downstream. Would the fluctuation in stream temperature be of sufficient magnitude to cause a violation of state water quality standards?

The draft EIS makes no reference to the potential for offstream pump storage facilities which would use Fort Peck Reservoir as an afterbay. Such an alternative would be considered highly preferable from an environmental standpoint to the present proposal.

5. Garrison. The significance of the tailwater fishery was not acknowledged in sufficient detail. Acquiring woodland habitats to replace those lost can only be considered a mitigating measure if it can be demonstrated that such resources would be lost if not purchased.

Increased discharge velocities and greater fluctuations in the releases could contribute substantially to turbidity levels and sediment loading rates to the headwaters of Oahe Reservoir. This condition may not be a uniform occurrence according to Section C of the Missouri River Technical Report; however, the varying release patterns and the wide disparity between high and low releases would make the flow regimen below Garrison Dam less conducive to the development of a stable quality ecosystem. The adverse effects of high discharge rates (up to 70,000 cfs) have underestimated erosion effects. Consideration should be given for moderation in the extremes between high and low discharge rates and more uniformity in discharges during the complete scheduled release cycle.

Given the data on high erosion rates coinciding with high substantial peak flows as now occurring below Gavin's Point, there appears to be some likelihood that stabilization efforts to reduce present erosion rates may be counterbalanced by the increased peak flows. We realize that the data available shows no direct correlation between stage height and bank erosion rates. However, the duration of sustained peak flows may well be an important factor in increasing the erosion rate. There does not appear to be a satisfactory theoretical understanding of just what factors are contributing to high bank erosion. An operational change in the Garrison releases represents a new situation that may have unpredictable effects. In any event, the periodic high flows and no-flow situations will be detrimental to the existing fishery. Consideration of this segment of the river for wild and scenic status would also be precluded by such irregular river flows. EPA cannot agree that periodically exposed mud flats, river bottom lands, etc., would be a contribution to aesthetic values. Vector problems could be quite significant under this type of operation. Present recreation values would also be seriously impaired, and economic losses from reduced usage could occur. A serious situation could exist in the highly populated Bismarck area if persons in the river channel were to become stranded with relatively rapidly rising water levels in the river.

For these reasons, EPA feels that pumped storage or the no action alternatives are preferable to the present proposal--with or without a reregulation structure.

6. Gregory County. A number of problems exist with the present proposal. A peaking power discharge of 24,700 cfs could disturb bottom sediments, causing turbidity problems in the reservoir. Turbine-caused fish mortality may be more than indicated, based on evidence at existing facilities. Fish that survive the turbine (certain sizes and luck) would be vulnerable to the forebay environment.

There appears to have been insufficient consideration given to the design of the intake/discharge structure for the Gregory County project to mitigate potential impacts. EPA document, Development Document for Proposed Best Technology Available for Minimizing Adverse Environmental Impact of Cooling Water Intake Structures (Dec. 1973), may provide ideas for consideration. Referring to page IV-16, a million kilowatts of peaking capacity is not sufficient justification for damaging a fishery when mitigating measures and alternatives exist.

The construction of this prototype 1180 megawatt pumped storage project could be a good indication whether more pumped storage projects in the future would, in fact, be desirable. Our present state of knowledge leads us to believe it can be operated as planned. Special attention should be focused on the potential sedimentation problems, fish kills, and

long-term operability of pumped storage facilities located in the somewhat porous and plastic shales, chalky and other sedimentary deposits forming the bedrock of the Missouri "Breaks" geology.

III. OTHER COMMENTS

1. It is stated more than once in the EIS that the environmental effects of harvesting quartzite and sedimentary rock in the proposed bank protection program is not considered a significant effect. What estimates have been made to support such statements? What quantification has been made of the materials needed for the proposed action? It is possible that the quarry sites cannot be specifically identified at this time, but action can be taken and estimates can be made to a certain degree of confidence that:

- quantify the amount of material needed for the project;
- identify existing quarry sites;
- determine if existing sites can provide the needed material;
- if adequate material is not projected to be available, identify potential quarry sites;
- quantify environmental impacts (land disturbance, dust, etc.);
- investigate the use of other substitute materials.

2. It is stated that a decline in fishing by people coming from beyond 100 miles is correlated with the deterioration of northern pike fishing success. What is the degree of correlation? If the correlation is shown in a special study, it should be referenced.

How does the projected increase in pike-oriented fishermen due to the effects of the rearing ponds relate to the loss of "Pike Hole" fishery below Garrison?

There is very little amplification of the real value of floodplain habitats, including woodlands. There should be more definition of the number and species of fauna that are dependent on these habitats. In some areas, particularly the more populated, a loss of such habitats could be quite significant due to the lack or limited amount of replacement habitat in adjacent areas. Economic assessments of these assessments should be more clearly defined. These comments would also apply to hydropower developments where there are habitat losses or impairment.

A cumulative estimate should be made of the bottomlands and wildlife already lost as a result of the Missouri River Reservoir system. Also, an evaluation should be made of what habitat remains and how much more will be destroyed as a result of the additional proposals.

4. Section 4.26, page IV-11, states that "Meanwhile, as in the case of the islands, no net loss in habitat value is anticipated because of changes in vegetation." We disagree; habitat is directly related to the types of vegetation available in any terrestrial or aquatic ecosystem. Anticipated vegetation changes should therefore be documented, which would clearly demonstrate the losses and/or the gains to wildlife.

5. Figure 9, page I-19, Water Surface Profiles: Even though the daily average release rate is the same, is it realistic to compare water surface elevations for the existing and potential maximum discharge rates on a different time basis? Also, why not compare for a daily average of 30,000 cfs rather than the 20,000 cfs average?

6. Figure 9, page I-19, Velocity Profiles: Since the 20,000 cfs daily average release rate would be exceeded one-half the time, why not show velocity profiles at maximum discharge?

7. There is an absence of any reference to other development and evaluation documents, EIS documents in particular, that could or will influence the Missouri Main Stem River system and thus the actions proposed in the subject document. The exclusion of any reference and consideration of impacts from such activities is a deficiency that should be corrected.

It has been noted in the draft EIS that, for hydroelectric projects in particular, both the U.S. Fish and Wildlife Service and the North Dakota State Game and Fish Department opposed some of the proposed actions. For instance (page I-10), the USF&WS prefers bank loss to the stabilization work, even though the personnel of that agency have measured high bank losses. The question arises: to what degree will such opposition to the proposed actions be considered? It is recommended that this opposition and the reason for such be clearly pointed out in the final EIS. Possibly, all pro and con arguments should be summarized and presented as an attachment to the final EIS.

SUMMARY

Evaluation of hydroelectric power modifications must consider future depletions and navigation. Your umbrella study has begun this task to evaluate these often opposed and disparate activities.

However, it is EPA's conclusion that the study effort has not fully evaluated options on the Missouri River system, many of which are imminent. EPA has therefore rated the EIS as ER-2. This rating means that EPA has environmental reservations about the entire plan and substantially more information is required.

EPA has very serious environmental reservations concerning the hydroelectric generating unit additions and reregulation structures at Fort Peck and Garrison Dam because of the likely severe and continuing degradation of the existing fisheries. In addition, EPA is opposed to the destruction of valuable wetland-woodland areas below these dams that will occur with the proposed operations. EPA promotes actions designed to implement the goals of P.L. 92-500 to create fishable, swimmable waters and recreational uses by 1983 and, therefore, has environmental reservations regarding these actions which could be contrary to these goals.

EPA feels that the Gregory County pumped storage unit can be made environmentally acceptable with controls on intake facilities and a monitoring program to observe sedimentation effects in the afterbay (Lake Sharpe).

EPA supports the proposal to recommend the Gavin's Point to Ponca Park stretch of the Missouri River for inclusion within the Wild and Scenic River System as a recreational river. It is somewhat premature to develop the extensive stabilization efforts in this reach, due to the problems previously mentioned. We support the need for research monitoring to determine aquatic life, wildlife habitat, and land use changes that will occur with those Congressionally defined demonstration measures. A full commitment to these devices should not be made until the environmental effects have been assessed.

We recommend the following improvements to the "Umbrella Study" effort to better define future environmentally sound options for the main-stem Missouri River system.

a) A better definition of the Missouri River hydroelectric system function within the large MARCA pool, including present and future uses of hydroelectric power for electrical peaking power.

b) A plan evaluation of the Ft. Peck, Garrison, and Gregory County peaking power increases as alternative proposals. Such an evaluation should compare environmental benefits as well as benefit/cost calculations. Evaluation of other pumped storage units, including the use of reverse-turbines with the Fort Randall floodpool, should be made.

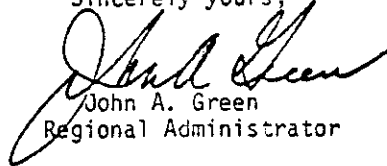
c) An analysis of continued navigation in the face of increasing flow depletion, competing power uses, and the present navigational profit structure should be made.

d) the analysis of wild and scenic river potential done for the Gavin's Point to Ponca Park stretch of the Missouri River should be expanded to other free-flowing segments in this study area.

e) The rearing ponds proposed should be reevaluated in response to the negative comments of the U.S. Fish and Wildlife Service, State Fish and Game agencies.

If you require further assistance on these comments, please feel free to contact Mr. Michael Gansecki or Martha Rosenberg (FTS 327-4831) of our staff.

Sincerely yours,


John A. Green
Regional Administrator

**REVIEW REPORT FOR
WATER RESOURCES DEVELOPMENT
MISSOURI RIVER
SOUTH DAKOTA, NEBRASKA, NORTH DAKOTA, MONTANA**

Reports of Other Agencies

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**PREPARED BY THE
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DEPARTMENT OF THE ARMY**

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APPENDIX 3
REPORTS OF OTHER AGENCIES

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FEDERAL POWER COMMISSION
REGIONAL OFFICE
31st Floor, Federal Building
230 South Dearborn Street
Chicago, Illinois 60604

March 4, 1976

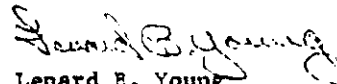
Colonel Harry F. Mumma
Division Engineer
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Colonel Mumma:

Fursuant to a February 9, 1976 telephone request from Mr. Terry Schlaht of your staff, we are enclosing a short statement describing the projected power needs of the market area served by Missouri River mainstem hydro generation.

If we can be of any further assistance, please do not hesitate to call on us.

Sincerely,


Lenard E. Young
Regional Engineer

Enclosure:
Statement "Projected Power Needs"

PROJECTED POWER NEEDS

The power output of the Missouri River Main Stem Hydro Plants is marketed on a wholesale basis to preference customers in the area by the Bureau of Reclamation. The marketing area approximates that of the Mid-Continent Area Reliability Coordination Agreement (MARCA), the membership of which is made up of all electric utilities serving the bulk power supply requirements of eastern Montana; the entire States of North Dakota, Nebraska, Minnesota, and Iowa; western Wisconsin; and most of South Dakota except for a small western portion. The Bureau is a member of this group of utilities which are all strongly interconnected and operate on a coordinated basis to interchange power, share reserves, and assist each other in emergencies. Thus, the Main Stem Hydros are, in effect, an integral part of the power supply for the MARCA Region.

Projected power needs in the MARCA Region are prepared annually and submitted jointly by the member systems to the Federal Power Commission pursuant to FPC Docket R-362. The most recent projection was submitted in April 1975 and covers the time period 1975-1994. MARCA system peak loads are projected to increase during this time period from approximately 15,000 megawatts in 1975 to nearly 48,500 megawatts by 1994. These projections appear to be reasonable. Assuming that required generating capability includes a 15 percent reserve margin, approximately 38,500 megawatts of new capacity will have to be added within the MARCA Region during the next 20 years.

Some of the required new capacity is now under construction, but much remains to be committed. Baseload requirements can be met by coal-fired or nuclear steam-electric plants, intermediate loads by conventional hydro or older steam-electric stations, and peak loads by peaking hydro plants of the conventional or pumped storage type and/or combustion-turbines. The output of the Missouri River Main Stem Hydro Plants, including the increased installations being considered, can be utilized to serve a portion of the future intermediate and peaking load requirements. In addition, it is estimated that approximately 1500 megawatts of new pumped storage or other peaking capacity could be utilized throughout the MARCA Region in the period 1980-1985 and another 4500 megawatts during the period 1985-1994. These needs reflect total MARCA requirements, and as such, comprise the collective needs of a number of the coordinated systems. Utilization of large additional installations at the Missouri River Main Stem Hydro Plants or large new pumped storage plants will, therefore, require sufficient advance notice to allow all utilities in the region to adapt their construction programs to reflect the availability of these new plants and, thus, to avoid duplicate installations.

FEDERAL POWER COMMISSION
REGIONAL OFFICE
31st Floor, Federal Building
230 South Dearborn Street
Chicago, Illinois 60604

November 23, 1976

Brig. Gen. William E. Read
District Engineer
U. S. Army Engineers, Missouri River Division
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear General Read:

In response to your letter dated July 21, 1976, power values have been developed for potential hydro capacity additions at Fort Peck, Garrison, and Fort Randall and at a potential pumped storage site in Gregory County, South Dakota adjacent to Fort Randall Reservoir. This letter will confirm the preliminary values furnished Mr. Dave Wooster of your staff by telephone on September 21.

The following hydro capacity additions were considered:

<u>Plant Site</u>	<u>Current Installation</u>		<u>Proposed Addition</u>	
	<u>Installed Capacity</u>	<u>Capacity Factor</u>	<u>Dependable Capacity</u>	<u>Capacity Factor</u>
	(MW)	(%)	(MW)	(%)
Fort Peck	184	62.2	196	30.1
Garrison	378	66.2	220	41.8
Fort Randall	306	64.9	250	35.7
Gregory County PS	-	-	1080	11.4
Gregory County PS	-	-	1080	10.3
Gregory County PS	-	-	1080	8.0

1/ Based on July 21, 1976 Corps of Engineers' request.

2/ Based on the addition of proposed new capacity at existing sites with no change in average annual generation.

Power values were developed for each of the above sites individually, for the three mainstem sites as a group, and for the three mainstem sites and Gregory County pumped storage as a group.

Our analysis of future requirements to satisfy projected area load growth indicates that all of the proposed additions could be utilized in a fully coordinated system. This analysis recognizes the possibility that an approximately 1000 MW pumped storage development currently being investigated by the Nebraska Public Power District may also be constructed during the same period. The study market area was limited to those systems operating within the Mid-Continent Area Reliability Coordination Agreement (MARCA) Region.

Because of the ownership differences of systems serving the market area, and consequently differences in financing costs, we have based our calculations on a composite type financing which represents the approximate mixture of private, REA, and public owned generation in the area.

Various alternative types of generation were evaluated for each of the potential hydro projects. On the basis of this analysis we have concluded that with either composite or federal type financing, a combustion turbine plant will result in the least costly alternative for each individual development or combination. Power values for the various sites and combinations reflecting this alternative are shown in Table 1, attached.

Power values, consisting of a capacity and an energy component, are applicable only when used in combination to develop the total value of the particular project for which they were computed. Energy values have not been included for the mainstem sites since these projects would not contribute additional energy to the system. The power values given for each development include an appropriate adjustment to reflect changes in overall system costs brought about by capacity factor differences in the alternatives analyzed.

Our calculation of total system cost for pumping energy in the case of the Gregory County pumped storage project indicates an average cost of approximately 9.0 mills per kilowatt-hour if the project is operated 1000 hours per year (11.4% cf), 8.9 mills per kilowatt-hour if operated 900 hours per year (10.3% cf), or 8.7 mills per kilowatt-hour if operated 700 hours per year (8.0% cf). This cost is based on the July 1976 production cost levels for generating facilities in the MARCA Region expected to be available above baseload operation at the time the pumped storage project is placed in-service. Optimum use of the most efficient available generating capacity throughout the MARCA Region was assumed.

Other assumptions used in the computation of these values are as follows:

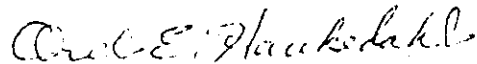
1. These values are applicable if the potential capacity is utilized in a fully coordinated system.
2. All calculations are based on July 1, 1976 price levels.

3. Plant cost data incorporate allowances for satisfying applicable environmental requirements.
4. Because of the national shortage, natural gas has not been considered as an alternative type fuel and oil has been considered only for limited duration peaking type generation.
5. Cost of strengthening the area's transmission grid to market the additional capacity has not been considered. Transmission sufficient to bring the output of the Gregory County pumped storage plant to the existing grid has been included. Combustion turbine capacity was assumed to be located at existing substations on the grid.
6. Assignment of a dependable value to the available hydro capacity presumes that its availability will become known sufficiently in advance to allow utilities in the area to reschedule a like amount of generating capacity.

The power values based on Federal financing at 6-3/8 percent have been given in accordance with your request. The Federal Power Commission, in its work related to Federal river development projects, consider it unrealistic to evaluate power development at such projects using Federally financed alternative sources of power as a basis of comparison.

If you should have further questions regarding these matters, please let us know.

Very truly yours,



Orel E. Haukedahl
Acting Regional Engineer

Enclosure:
As noted

Table 1

Summary of Power Values

Site	Composite Financing @ 9.22%		Federal Financing @ 6.375%	
	Capacity Value (\$/kW/yr)	Energy Value (Mills/kWh)	Capacity Value (\$/kW/yr)	Energy Value (Mills/kWh)
Fort Peck	41.80	<u>1</u> /	33.00	<u>1</u> /
Garrison	42.10	<u>1</u> /	33.30	<u>1</u> /
Fort Randall	41.90	<u>1</u> /	33.20	<u>1</u> /
Mainstem Group <u>2</u> /	41.40	<u>1</u> /	32.60	<u>1</u> /
Gregory Co.P.S.@ 8.0% cf <u>3</u> /	20.50	32.8	11.80	32.8
Gregory Co.P.S.@ 10.3% cf <u>4</u> /	20.50	27.6	11.80	27.6
Gregory Co.P.S.@ 11.4% cf <u>5</u> /	20.50	25.8	11.8	25.8
Mainstem Group <u>2</u> / plus Gregory Co.P.S.@ 8.0% cf <u>3</u> /	41.30 20.50	<u>1</u> / 32.8	32.6 11.80	<u>1</u> / 32.8
Mainstem Group <u>2</u> / plus Gregory Co.P.S.@ 10.3% cf <u>4</u> /	41.10 20.50	<u>1</u> / 27.6	32.40 11.80	<u>1</u> / 27.6
Mainstem Group <u>2</u> / plus Gregory Co.P.S.@ 11.4% cf <u>5</u> /	41.00 20.50	<u>1</u> / 25.8	32.30 11.80	<u>1</u> / 25.8

1/ No energy value given since proposed capacity increase will not increase energy output.

2/ Mainstem Group consists of additions at Ft. Peck, Garrison and Ft. Randall.

3/ Pumping energy cost 8.7 mills per kWh.

4/ Pumping energy cost 8.9 mills per kWh.

5/ Pumping energy cost 9.0 mills per kWh.



United States Department of the Interior

BUREAU OF RECLAMATION

Upper Missouri Region

P.O. Box 2553

Billings, Montana 59103

MAY 19 1976

IN REPLY
REFER TO:
651.

Division Engineer
Attention: Gus J. Karabatsos
Missouri River Division
Corps of Engineers
P.O. Box 103
Omaha, Nebraska 68101

Dear Sir:

Enclosed are maps showing the transmission facilities required for the proposed peaking and pumped storage additions on the main stem. The additional transmission facilities identified for these additions have taken into account generation and transmission additions being considered by utilities in the area and any changes in the utilities plans could have an effect on the ultimate transmission requirements. For this reason, we believe that the establishment of transmission line corridors at this time would be premature. An environmental impact statement will be prepared for the transmission lines to meet the requirements of the National Environmental Policy Act of 1969, Public Law 91-190. Enclosed are additional details concerning environmental considerations that would be followed in locating and constructing transmission lines.

The design, location, clearing, and construction of the transmission lines will follow the guidelines in the Federal Government publication Environmental Criteria for Electric Transmission Systems, published jointly by the U.S. Department of Agriculture and U.S. Department of Interior.

While the proposed peaking generation additions will not produce a significant amount of additional energy, they are certainly compatible with the power supply developments being made by the preference customers and the requirements of the electrical consumer in the Missouri River Basin. All of the existing hydroresources on the Missouri River and its tributaries have been committed to preference customers in the area. With the full utilization of the hydroresources, the preference customers are now developing supplemental power supplies from thermal resources to meet their future load growth. The installation of peaking units and pumped storage and their integration with thermal generation can provide a desirable and efficient use of resources available for



Tnals

Appendix 3

electric energy production. Peaking and pumped storage units will reduce the need for oil-fired combustion turbines to meet peakloads while the pumped storage units will provide offpeak load for the large coal-fired generating units which cannot be cycled on an hourly basis.

During the winter of 1973-74 the area served by the Upper Missouri Region saw a very small load growth compared to the previous season's peakload, and the winter of 1974-75 saw a reduction in relation to the winter of 1973-74. However, this past winter, even with its comparably mild weather, this Region experienced a peakload 12.8 percent greater than the 1974-75 winter peak. A similar situation was experienced in other Regions of the Nation. A 1.8-percent reduction was experienced during the summer of 1974, with a 5.8-percent increase during the summer of 1975. That amounts to about a net of 2-percent increase for each of the last two summers which is also comparable to the total electric utility industry in the United States.

Factors such as weather, local and national economy, and alternative energy sources can have a major impact on consumption of electric power and energy. One of the more significant factors at this time is the potential lack of and/or the higher cost of alternative energy sources. This has created considerable conversion to electric heat and conversion from gas and diesel engines for irrigation pumping to electric motors. In addition, higher prices for farm products have encouraged more irrigation. For these reasons we believe that the demand for electricity by our preference customer will continue to grow.

We must also recognize that the service dates are projected for the mid-1980's and that we must plan now to meet the requirements 10 years from now. As you know, the Federal Power Commission requires utilities to submit plans annually for the next 10 years and also a 20-year plan. We do not intend to report any potential peaking development on the main stem to Mid-Continent Area Power Pool (MAPP) until your plans are more definitive.

We hope these comments will be helpful during the public meetings concerning the addition of peaking units at the main stem powerplants and possible pumped storage facilities.

If we can be of further assistance, please advise.

Sincerely yours,

Acting *E. R. Wills*
Regional Director

Enclosure 26875

ENVIRONMENTAL CONSIDERATIONS IN LOCATING AND CONSTRUCTING TRANSMISSION LINES

Construction specifications would require that the contractor exercise care in preserving the natural landscape and conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings. All work areas would be smoothed and graded to conform to the natural appearance of the landscape. Construction specifications would require that unnecessary destruction, damage or defacing as a result of the contractor's operations be repaired, replanted, reseeded or otherwise corrected at the contractor's expense.

The contractor would be required to comply with all applicable Federal laws, orders, and regulations, and the laws of the states involved concerning control of pollution of streams, reservoirs, ground water, or water courses with respect to pollution or the discharge of refuse, garbage, sewage effluent, industrial waste, mineral salts, or other pollutants.

The contractor would be required to comply with all applicable Federal, state, and local laws and regulations concerning the prevention and control of air pollution. In conduct of construction activities and operation of equipment, the contractor shall utilize such practicable methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants.

During the performance of the work, the contractor would furnish all labor, equipment, materials, and means required, and would carry out proper and efficient measures wherever and as often as necessary to reduce dust and to prevent dust which has originated from his operations from damaging crops, orchards, cultivated fields, and dwellings, or causing a nuisance to persons.

During construction, burning of slash would be permitted only at times when conditions are considered favorable for burning and at locations approved by proper state or local authorities. All burning would be so thorough that the materials are reduced to ashes. In lieu of burning combustible material, the material may be reduced to chips of $\frac{1}{4}$ -inch-maximum thickness, distributed uniformly on the ground surface within the right-of-way, and mixed with the underlying earth so that they would not support combustion.

Areas disturbed during construction will be revegetated consistent with present land use. Most of the land required for the right-of-way easements would continue to be farmed or pastured after construction of the transmission lines and terminal facilities.

Where river crossings or highway crossings occur, structures would be spaced with long spans and set back from the river or highway as far as practicable.

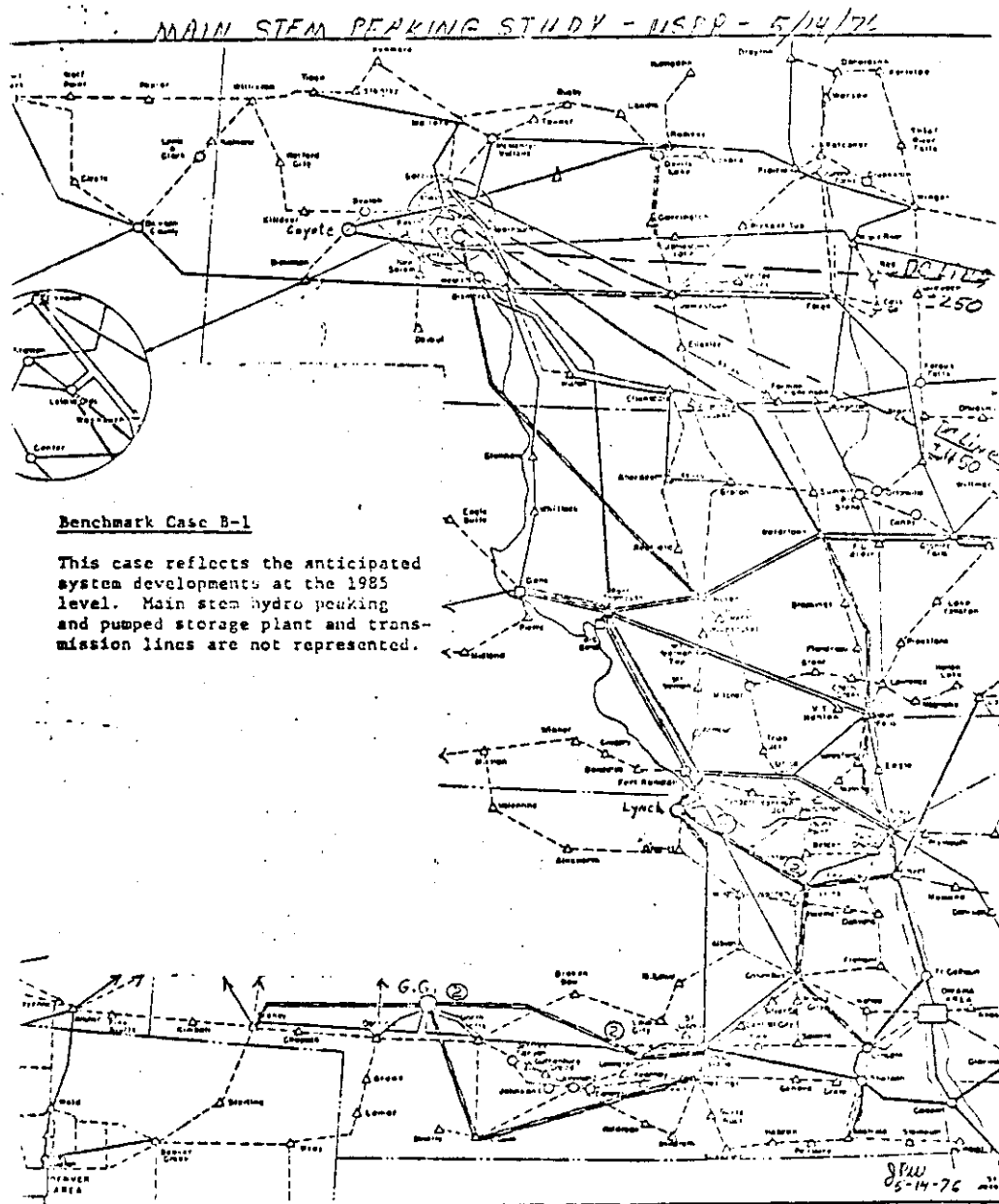
The alignment through farms would be selected as far away from buildings as reasonable to minimize interference with the farmstead as well as radio and television interference. Sufficient physical separation would be provided from dwellings so that there would be little, if any, adverse effects on radio or television reception. The conductor size would also be sufficiently large to minimize interference with radio or television reception. The transmission lines would be placed to provide the least amount of disturbance to farming operations.

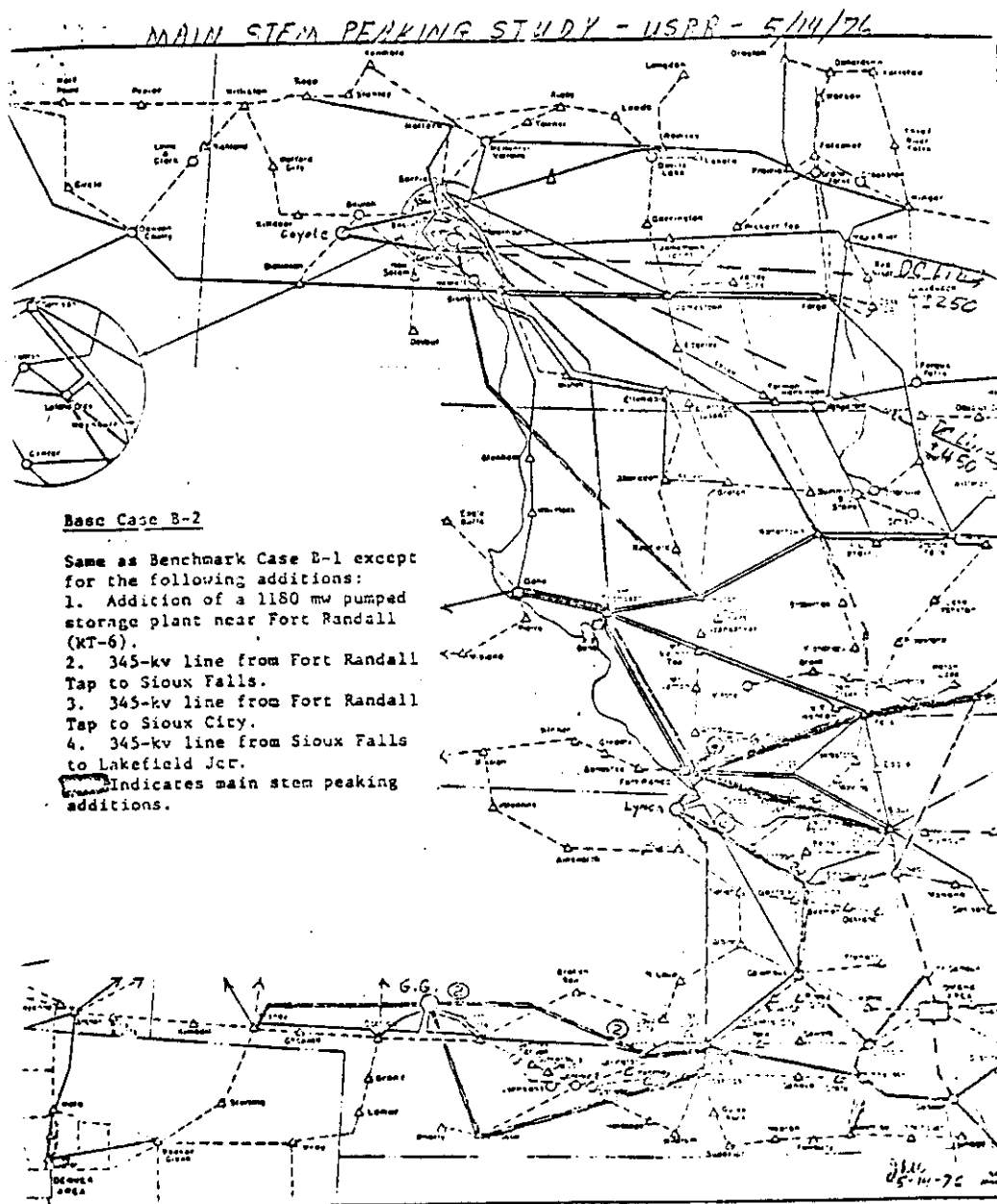
Clearing of shelterbelts or clumps of trees will be kept to a minimum or eliminated entirely. Structures can be close enough to the trees, so that installation of higher structures will permit the line to go over the trees and eliminate clearing or reduce the clearing to topping or trimming only.

Tension stringing methods would be utilized to install the conductors and overhead ground wires. Use of this stringing technique would also reduce the impact of line construction since heavy equipment would not have to move from structure to structure along the entire length of right-of-way. Stringing equipment would be set up at 2- to 3-mile intervals. This stringing technique would also allow trees to be trimmed instead of removed and underbrush left undisturbed.

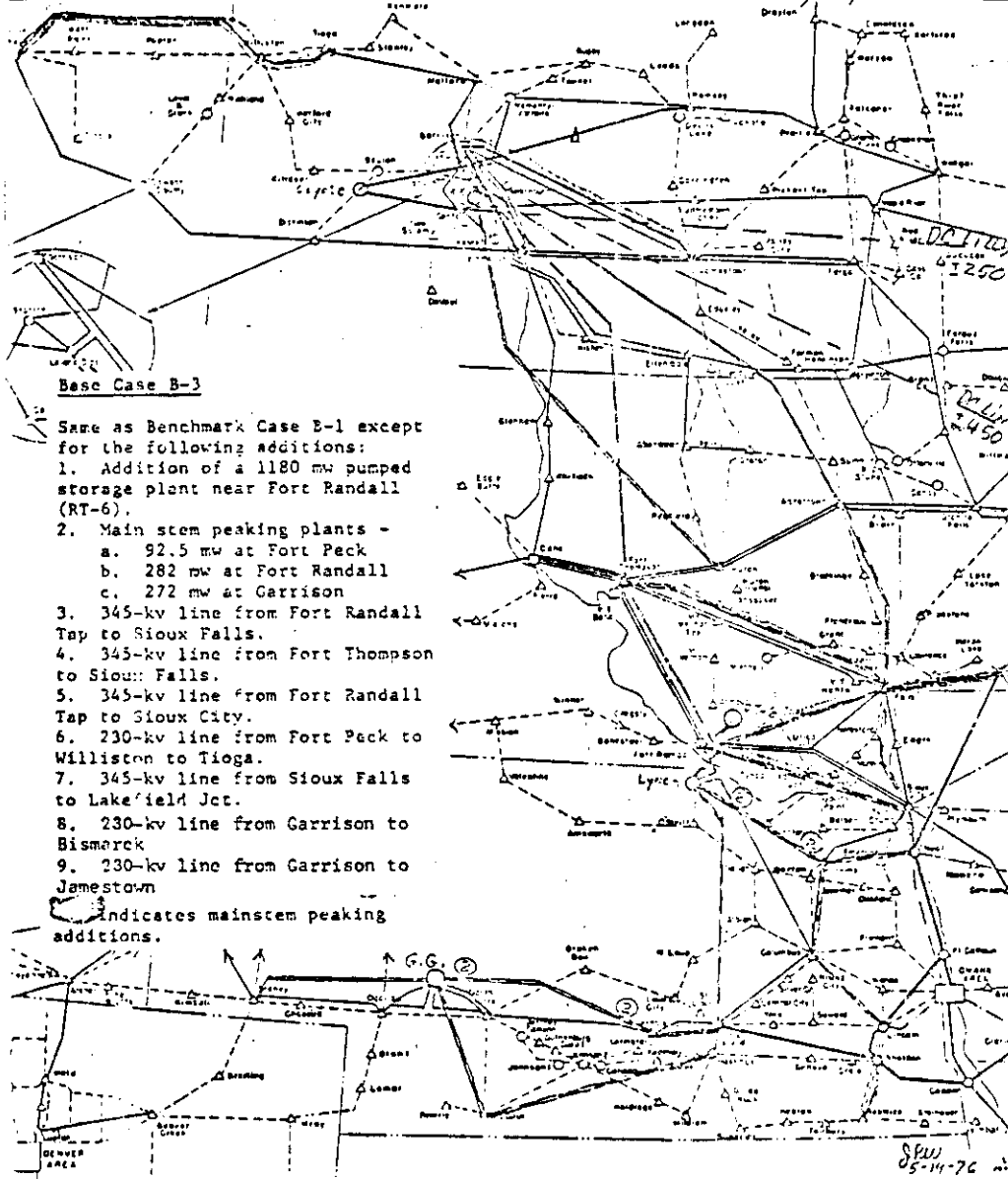
All towers are grounded at each leg. To prevent electrification of fence lines, wood-post fences parallel to and within 100 feet of the centerline are grounded at 1/8-mile intervals and fences with steel posts are grounded at 1/4-mile intervals. One grounding post is used at each side of the right-of-way for fences crossing under the line.

In the event fossils or archaeological remains are discovered during emplacement of towers, the state archaeologist would be notified for a determination of the disposition of the discovery, and the contractor would provide such reasonable assistance and cooperation as may be necessary to preserve the findings for removal or other disposition by the Government.





MAIN STEM PEAKING STUDY - USPP - 5/14/76





IN REPLY REFER TO

D42

United States Department of the Interior
BUREAU OF OUTDOOR RECREATION
MID CONTINENT REGION

MAILING ADDRESS:

Post Office Box 25387
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:

603 Miller Court
Lakewood, Colorado
Telephone 234-2634

January 7, 1977

Mr. Gus J. Karabatsos
Chief, Planning Division
Missouri River Division
U.S. Army, Corps of Engineers
P.O. Box 103, Downtown Station
Omaha, Nebraska 68101

Dear Mr. Karabatsos:

In response to your letter of December 23, 1976, and discussions with Mr. David Billman of your staff, enclosed are two copies of our rewrite of Section E (Selected Plan, National Wild and Scenic River Proposal, Gavins Point Dam to Ponca State Park) for inclusion in your Missouri River Umbrella Study draft report. We are also enclosing two copies of a rewrite of the "No Federal Action" section which corresponds to Section D, paragraph 80, pages D-22 and D-23, of your draft.

Should you have any questions on this material, please give us a call.

Sincerely,

Albert G. Baldwin
Assistant Regional Director
Resource Planning Services

Enclosures *

cc wo/enc: David Billman

* (Enclosure is part of Section E, Appendix I)

Appendix 3



SECTION D - FORMULATING A PLAN

NO FEDERAL ACTION (Revised)

80. Under six functional categories, this section has identified a number of possible solutions to problems and needs. In addition, there exists for each of the six the alternative - although in most cases it is not a solution - of no Federal action. This alternative assumes a continuation of current trends in the use and development (or loss and degradation) of resources, and that no new Federal actions will be taken as a result of this study.

A determination must be made for each resource category as to what conditions and measurable effects will result from a no Federal action situation. This makes it possible to establish a baseline from which to measure impacts of alternatives and of the recommended plan. The results of no Federal action will vary: some activities, such as bank stabilization or national wild, scenic, or recreational river designation, appear to require direct Federal involvement or some form of joint Federal-State actions. Other activities, such as additional electrical generation, seem likely to occur with or without Federal initiative. No Federal action should not be equated with a continuation of present conditions for most resource categories. Lack of bank stabilization, for example, will not preserve the river in its present state. Rather, it will preserve a regime of continuing change; and while the river will remain attractive and natural-appearing in some respects, unique and valuable islands, sandbars, wooded areas, and farmlands will be lost.



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

711 Central Avenue
Billings, Montana 59102

April 15 1976

Colonel Russell A. Glenn
District Engineer
Corps of Engineers, Omaha District
8014 U.S. Post Office & Courthouse
Omaha, Nebraska 68102

Dear Colonel Glenn:

This planning aid letter provides our preliminary assessment of the effects on fish and wildlife resources of alternative proposals for hydropower developments downstream of Fort Peck Reservoir. The analysis was prepared in response to your January 20, 1975, and April 17, 1975, requests for assistance in the assessment and evaluation of alternatives being studied under authorities contained in Senate Report No. 93-1032.

This letter has been informally coordinated with the Montana Department of Fish and Game (letter of comment attached) and supersedes our earlier planning aid letter of April 10, 1975. However, this letter does not constitute the final report of the U.S. Fish and Wildlife Service within the meaning of Section 2 of the Fish and Wildlife Coordination Act (48 Stat. 401 as amended; 16 U.S.C. 661 et. seq.), nor does it discharge our responsibilities under the National Environmental Policy Act of 1969 (Public Law 91-190, 83 Stat. 852-856). A Fish and Wildlife Service report covering all aspects of the Missouri River "Umbrella Study," and designed to meet Coordination Act requirements is scheduled for completion in November of 1976. The report, which will integrate the material in this letter with analyses from other area offices, will be coordinated by and submitted from our Denver Regional Office.

Introduction

The three National Economic Development (NED) alternatives evaluated herein are limited to those occurring immediately downstream of Fort Peck Dam. These include: (1) the addition of two turbines with a rated capacity of 185 megawatts without downstream reregulation; (2) the addition of two turbines with a rated capacity of 135 megawatts with a reregulating dam at river mile 1766.23 (Range 3); and (3) the addition of two turbines with a rated capacity of 185 megawatts with a reregulating dam at river mile 1763.84 (Range 4).



Appendix 3

We understand that main stem dam proposals at the Fort Benton and Cow Creek Sites, and pumped-storage alternatives at Fort Peck Reservoir, have been dropped from consideration under the Missouri River "Umbrella Study." Also, it is understood that there are no plans to evaluate bank stabilization or water logging problems within Montana as part of this study. Accordingly, none of these alternatives or potential alternatives were addressed.

The primary objective of your current study at Fort Peck, as we understand it, is to determine the feasibility and advisability of constructing two additional hydropower units in Fort Peck Dam. The additional facilities would provide increased peaking capabilities at the dam, but would not result in a net increase in total power production. Although significant within-bank storage fluctuations downstream from the powerhouse would accompany additional peaking capabilities, no significant operational changes of Fort Peck Reservoir would be required according to information provided us. Only very small changes in hourly, daily, and weekly patterns in the reservoir elevations are anticipated. These changes are estimated to cause accumulated variations of not more than 0.1 to 0.2 feet over those occurring under current operations. On that basis, we have assumed that no significant alterations of fish and wildlife habitats associated directly with the reservoir would occur. We are considering the area of influence to be limited to the area downstream from Fort Peck Dam.

Fish and Wildlife Resources

The Missouri River, within the area of project influence, has been highly modified in recent decades by the construction and operation of Fort Peck Dam. Fort Peck Reservoir, formed when the gates of the dam were closed in 1937, inundated approximately 247,000 acres of land, including more than 134 miles of Missouri River bottom land. In addition, the natural flow regimes of the river below the dam have been drastically altered to meet power, flood control, and irrigation demands. Major changes in downstream water quality have occurred. Fall and spring temperature changes were slowed and modified, turbidity was reduced and dissolved oxygen levels were increased. The accumulated effects of these changes on fishes of the Missouri River are apparent when relative abundances of given fish species occurring in the tailrace are compared to relative abundance estimates farther downstream. Forty species of freshwater fish are now known to occur in the Missouri River below Fort Peck Dam. Twenty-eight of these species are native to Montana and 12 species are considered to be exotics. Of the 40 species occurring in the tailrace, only 17 species are rated as being abundant or common, whereas 27 species are rated in these categories further downstream. Abnormally cool water temperatures, from low level water releases and the rapidly fluctuating water levels in the river occurring from power generation, are believed to be prime factors affecting relative abundance of fishes in the tailrace area.

Of special interest are paddlefish that migrate up the Missouri River from Garrison Reservoir and concentrate in the dredge cuts below Fort Peck Dam. Although many factors affecting paddlefish migrations are not fully understood, it is believed that increased flows, from downstream tributaries, warmer water temperatures and a lengthening photo period are prime factors influencing migration. Another factor to be considered is the productivity level of water in the dredge cut areas. Higher summer temperatures and a low rate of water exchange in the dredge cuts, as compared to adjacent waters in the tailrace, account for higher productivity in the cuts. These conditions are attractive to paddlefish, which are detritus and plankton feeders, and may partially or largely account for the concentration of these fish in this area. However, the significance of the dredge cut "habitats" to the life history requirements of the Missouri River paddlefish population are not known.

In any case, a significant sport fishery for paddlefish exists when these fish are concentrated in the dredge cuts following migration. A walleye and sauger sport fishery also occurs in the tailwater area below Fort Peck Reservoir when these fish are concentrated during periods of favorable water releases and temperatures. Lake trout, an introduced species, is also considered an important fish in the tailrace area.

The Fort Peck project has resulted in major land-use changes below the dam. The large dredge cuts were created when fill was excavated for dam construction. Additional land acreages were committed to recreational purposes and wildlife management. The accumulated effects of these changes on the fauna of the upper Missouri River Valley have been significant.

Though modified, wildlife resources in the area remain varied. Woody habitat of importance occurs as dense stands of cottonwoods and willows along the bottomlands and on the larger islands. In timbered areas not heavily grazed, grasses, forbs, and wildrose provide the understory. An abundance of songbirds frequent the river bottom. Cormorants, pelicans, herons, and gulls are often seen. Bald and golden eagles, sparrow hawks, red-tailed hawks and snowy owls have been observed.

Upland game habitat is characterized by an interspersed of grainfields, brush areas, pastures, and hayfields of varying sizes. Pheasants, cottontail rabbits, and a few Hungarian partridges are common upland game species. Pheasants and cottontail rabbits are most numerous in the agricultural lands that are interspersed with brushy areas and idle acreages.

The U.S. Fish and Wildlife Service has established a nesting flock of Canada geese in this area. Islands and dredge cut ponds furnish most of the habitat used by geese for nesting.

Islands of particular importance are Scout Island and Duck Island. These rather large islands, 193 acres and 95 acres respectively, contain marshy areas which provide secure resting and nesting areas for migratory waterfowl. For example, about 40 goslings (Canada geese) have been produced annually in this area during the last three years. Although whitetail and mule deer utilize both of these islands, Scout Island, which is not grazed by domestic livestock, is of particular importance to them.

The diverse vegetation occurring on this island provides excellent escape cover for pheasants as well.

The area below Fort Peck Dam is significant to wintering waterfowl, particularly mallard populations. The seepage from the main dam is collected in sumps. The water from these sumps is discharged below the dam, forming a stream called Duck Creek. This warm water stream remains open during the winter and at times is utilized by up to 20,000 wintering mallard ducks. This large aggregation of ducks has created several management problems. During years when there are no other ice-free areas in the vicinity and snow covers the surrounding grain fields, natural feeding areas are largely eliminated. Under these conditions, many of the birds become weak and some starve. Because the population is highly visible to the public, there is considerable interest in and pressure for supplemental feeding of the birds.

Another potential problem with this heavily concentrated wintering population is the possible outbreak of DVE (Duck Viral Enteritis). If this disease were to break out, the entire population would have to be destroyed and disposed of to prevent the spread of infection to other populations.

The American Peregrine Falcon (Falco peregrinus anatum) classed as Endangered under provisions of the Endangered Species Act of 1973, has been observed during the winter months in the vicinity of Duck Creek. The area is probably attractive to the birds because of the high concentration of wintering mallards there.

The Smithsonian Institution has prepared lists, by states, of potentially threatened or endangered plant species. Ten species within these categories were identified as occurring in Montana. We have no knowledge that any of these plants occur in the proposed project area.

Procedure and Existing Situation Analysis

The National Coordinating Committee (NCC) for fish and wildlife conservation in Federal water development programs recommended in November 1973, that the U.S. Fish and Wildlife Service (USFWS) move promptly to establish and implement a system of habitat evaluation based on non-monetary measures of habitat value in order to more adequately display the beneficial and adverse effects of water development projects on fish and wildlife resources. In response, the USFWS organized a committee to develop ecological planning and evaluation procedures. The committee was composed of representatives from state fish and wildlife agencies, private conservation organizations, and USFWS.

The Joint Federal-State Conservation Organizations Committee completed a draft proposal in January 1974 entitled, "Ecological Planning and Evaluation Procedures." These procedures have been used to evaluate the hydropower additions at Fort Peck Dam.

During September 1975, a team of three biologists (Dick Trueblood, Montana Department of Fish and Game; Mike Erwin, USFWS; and Doug McDonald,

Corps of Engineers, Omaha, Nebraska) delineated and rated terrestrial habitat in the area of the reregulatory proposals for the purpose of establishing baseline or existing habitat conditions. A total of five habitat types was described.

- (1) The woodland type consists of an overstory with a closed or nearly closed canopy of cottonwoods. In this type, the understory varies from only one or two species of plants to a very diverse intermixture of rose, buffaloberry, willow, snowberry, grass and silver sage.
- (2) The savannah type consists of an overstory of widely scattered cottonwoods with an understory of grass or a mixture of silver sage, grass and rose.
- (3) The marsh type consists of a variety of plant species with the number of species occurring in any one location varying, but including one or more of the following: willow, cattail, bullrush, cottonwood saplings, equisetum, sedge and grass.
- (4) The shrub grassland type is composed of two vegetative associations in the bottomlands and one in the uplands. By far the most prevalent in the bottomland was the silver sage-grass type; buffaloberry, rose, snowberry, silver sage and grass comprised the other. In the uplands, big sage and miscellaneous grasses are the dominant components of the shrub grassland habitat type.
- (5) The cropland type consists primarily of wheat, barley and alfalfa.

The aquatic habitats within the project area were also analyzed and subjectively evaluated by a team of aquatic biologists. (Jim Leibelt and Richard Johnson, Montana Department of Fish and Game; Dennis Christopherson, USFWS; and Chuck Frith, Corps of Engineers, Omaha, Nebraska.) The evaluation was based on limited available biological data, using other Missouri River mainstem reservoir tailraces as a basis for comparison. Two habitat types were identified:

- (1) The river type includes the tailrace and downstream reaches of the Missouri River, including backwater areas.
- (2) The dredge cut type is limited to the pool areas located west of Highway 249.

These terrestrial and aquatic habitat types were subjectively rated on a scale of 1 to 10, with 10 representing the maximum attainable value of the habitat type for meeting habitat requirements of the species being evaluated when compared to similar types in the region. The region is an arbitrarily defined geographical area with comparable climatological, edaphic and topographical characteristics.

The woodland habitat was rated at an average value of 7.1 habitat units per acre under present conditions. Savannah, formed to some extent by

clearing woodlands for grazing, was given an average rating of 4.2 habitat units per acre. Marsh habitat was made up of small acreages and exhibited considerable variation in vegetative composition; five such areas were evaluated and given an average rating of 5.6 habitat units per acre. Shrub grasslands exhibited dissimilarity between locations; four sample areas were rated at an average value of 6.3 habitat units per acre. Two basic crop types exist in the project area, small grains (wheat and barley) and alfalfa. Two samples, one on National Wildlife Refuge lands and one on private land, were used to rate the wheat-barley cropland because of the contrasting farming practices in use. Wildlife management practices on refuge lands include leaving a portion of the crop unharvested, maintaining minimum stubble heights and delaying discing of stubble until spring. Consequently, these lands are of more value to wildlife. The ratings from these samples were averaged with the rating for alfalfa land, all of which was on private land, to arrive at a cropland rating of 4.1 habitat units per acre.

Average rated value of the river-type aquatic habitat type was 8.3. The dredge cut type was also rated at 8.3 habitat units per acre.

These aquatic and terrestrial evaluations combined with acreage inventories provided the baseline information for our non-monetary assessments of the various Fort Peck hydropower alternatives. The planning area considered when comparing alternatives extended from Fort Peck Dam to R.M. 1801.2 below Wolf Point, Montana (See Attachment #3). Summarized basic data, including certain assumptions used in the analyses, are available in the Billings Area Office of the U.S. Fish and Wildlife Service.

The alternatives evaluated include: (1) additional units without reregulation, (2) additional units with a reregulation dam at Range 3, and (3) additional units with a reregulation dam at Range 4. In addition, a "no action" alternative was evaluated. On March 3, 1976, we were informally advised that the addition of only one hydropower unit, without reregulation, was now being considered. Our evaluation of this alternative will be presented at a later date in another planning aid letter.

No Action

A decision not to proceed with construction of additional hydropower facilities at Fort Peck Dam would, of course, have no direct effect on existing fish and wildlife resources. The existing resource base, as briefly described earlier in this memorandum, will continue to be largely a function of changing land use patterns in the area. Wildlife populations on lands committed to wildlife management purposes would be protected from major habitat alterations. Populations whose critical habitats are on private or public lands not solely committed to wildlife management may in some cases be subjected to further deterioration. For example, under present management practices the woodlands in the project area will probably disappear in the near future. Cottonwoods are being cut and burned to provide more grassland for cattle. Even when woodlots are not cleared, intensive grazing is eliminating the shrubby understory and preventing regeneration of cottonwoods. Without cessation of deliberate cutting and without the benefit of additional recruitment

the existing woodlands may not persist over a long number of years. While the woodlands in their present condition are of value to wildlife, some of this value will likely be lost in the future and the habitat type will become modified even further.

Wildlife habitats of all types occurring on the islands will also be subject to some alterations in the foreseeable future. Evidence of active erosion on islands is readily apparent. It appears that many of the small islands, which now serve as important goose nesting areas, will eventually be destroyed unless somehow stabilized.

With the exception of the islands and woodlands, we believe long term habitat trends are virtually impossible to predict with confidence. Therefore, for the purpose of this analysis we assumed the existing conditions would prevail.

Major changes in downstream fish populations and habitats would not be anticipated, unless significant alterations are made in reservoir operations.

Additional Units Without Reregulation - (Two Units)

Construction of new hydropower facilities without providing for re-regulation of flows resulting from peaking power operations would have significant adverse effects on fishery resources in downstream reaches of the river. Analysis of the hydrological data and operational assumptions you provided indicates that degradation of fish habitats would occur, in varying degrees, from Fort Peck Dam downstream for a distance of at least 70 miles. Habitat disturbances resulting from increases in water level fluctuations and water velocities would be the primary cause of degradation. Increases in water level fluctuations would expose larger areas of the stream substrate to daily drying or freezing conditions. Increases in stranding of aquatic organisms, including fish, would accompany large water flow reductions. Flushing and mechanical damage to stream substrate as a result of larger water volumes at increased velocities would occur. An increase in water turbidities would be anticipated.

The unregulated peaking discharges would aggravate bank erosion and would limit establishment of vegetation of streambanks and sandbars. Streambank habitats, which are important to beaver and muskrat, as well as many other animals, would be adversely altered. Canada goose nesting habitat would be destroyed by accelerated erosion of shoreline habitats. Effects of increased water level fluctuation on nesting behavior of Canada geese in the area are not known at this time.

Approximately 814 acres of wildlife habitat occurs on islands in the 70 mile section of river below Fort Peck Dam. Wildlife habitats on these islands would be inundated or destroyed by accelerated erosion from unregulated water discharge.

In our opinion, the loss of 37,349 habitat units of river and dredge cut habitats occurring with this alternative could not be mitigated. Losses of island habitats might be mitigated through acquisition and intense

management of similar acreages of remaining island habitats or by acquiring and managing similar non-island riparian habitats for wildlife. Approximately 1,271 acres of such riparian habitat would be required.

Table 1 summarizes existing acreages of the seven habitat types, potentially altered by this alternative and reflects habitat units potentially lost as well as the acreages of similar lands in the area that would need to be acquired for management if effective mitigation were to be accomplished.

TABLE 1. HABITAT SUMMARY - ADDITIONAL UNITS WITHOUT REREGULATION

<u>Habitat Type</u>	<u>Existing Acres</u>	<u>Existing Habitat Units</u>	<u>Net Habitat Units Lost or Gained (Annualized)</u>	<u>Approximate Acreage Required for Mitigation</u>
Shrub Grassland	474	2,986	- 2,986	807
Woodland	101	717	- 717	247
Savannah	160	672	- 672	116
Marsh	79	442	- 442	101
Cropland	---	---	---	---
River	9,430**	70,774**	- 32,546	19,145*
Dredge Cut	643	5,337	- 4,803	2,825*
TOTALS	10,887	80,928	- 42,166	

*Cannot be mitigated

**Includes islands inundated by the river

Additional Units, Reregulation Dam at Range 3 (R.M. 1766.23)

Construction of a reregulation dam below Fort Peck Dam having sufficient storage to provide "perfect regulation of peaking flows and adequate minimum flows during shutdown periods would confine major alterations of fish and wildlife habitats to the area between the reregulation structure and Fort Peck Dam.

A dam at Range 3 would change approximately five miles of the Missouri River into a fluctuating reservoir environment. The reservoir would have a surface area of approximately 2,350 acres at full pool and would undergo daily water level fluctuations of up to 9.8 feet. Approximately 557 acres of riparian and flood plain habitat would be inundated or otherwise lost as a result of accelerated erosion, with island habitats accounting for 327 acres of this loss.

Accelerated erosion of shoreline habitats combined with the loss of island habitats will have substantial adverse consequences on Canada geese. These habitats serve as nesting areas for the birds and any reduction in the number or size of the islands will affect their nesting success. The effect of increases in water level fluctuation on the breeding behavior of Canada geese is not fully understood, although it has been observed to be generally undesirable.

The increases in water level fluctuations will adversely affect bank dwelling mammals, particularly muskrats and beaver.

Riparian and floodplain habitat is in ever decreasing supply and the loss of 557 acres of this type habitat will adversely affect all resident game and non-game species occurring in the area.

Inundation of portions of Duck Creek, combined with significant increases in daily stage fluctuations within the proposed reregulation pool, will alter habitat conditions that are now attractive to wintering mallard populations below Fort Peck Dam. Increases in wintering habitat could occur with the increased availability of open water above and below the reregulation dam and with the periodic availability of exposed bars and flats. Contrarily, the daily increase in water level fluctuations that would occur within the protected area of Duck Creek could offset any improvement in other habitat factors. Whether corresponding increases or decreases in wintering mallard populations would follow is not known because many factors exerting limiting pressures on the existing population are not fully understood. If, however, relocation of the population or portions of the population to open areas within the reregulation pool occurred, artificial feeding would be nearly impossible. Although this population of birds provides significant late season sport hunting opportunities for residents of the area, "shortstopping" of migratory birds in northern climates is considered undesirable. "Shortstopping" is undesirable because of the potential danger for outbreaks of Duck Viral Enteritis and the inevitable demands by the public for supplemental feeding during severe winters.

A reregulation dam constructed at Range 3 would have severe effects on the aquatic resources occurring above the reregulation dam. The dam would provide a physical barrier to the movement of fishes. Access of paddlefish to the Fort Peck dredge cuts would be eliminated. Although the relationship of the dredge cut habitats to the life history requirements of the paddlefish is not known, it is anticipated that there would at least be a reduction in the sport harvest of the species even if the biological integrity of the existing run were maintained.

Movement of walleye and sauger into the tailrace area would be eliminated. However, a similar tailrace fishery might develop below the reregulation dam. Such a sport fishery would be dependent upon the development of adequate access and recreational facilities.

At the present time it is not known if spawning areas for any of these fish occur in the area that would be inundated by a reregulation dam.

The reregulation pool would provide an unproductive environment for fishes. The highly fluctuating water levels combined with rapid turnover rates and cool water temperatures would preclude development of a significant fishery.

The effect of increases in water level fluctuations within the dredge cuts would be noticeable. Primary and secondary productivity would

be reduced as a result of corresponding decreases in average water temperatures and the projected increase in siltation from accelerated bank erosion. Subsequent decreases of sport fishing opportunities in the dredge cuts would be anticipated.

Elimination of the extreme within-bank fluctuations which would occur without a reregulation dam and preservation of an instantaneous minimum stream flow of 3,000 cfs at all times below the reregulation dam would eliminate effects of the proposed project on downstream fish and wildlife resources.

The effects of the regulation dam on aquatic and terrestrial habitats are displayed in Table 2.

TABLE 2. HABITAT SUMMARY - ADDITIONAL UNITS, REREGULATION RANGE 3

<u>Habitat Type</u>	<u>Existing Acres</u>	<u>Existing Habitat Units</u>	<u>Net Habitat Units Lost or Gained (Annualized)</u>	<u>Approximate Acreage Required for Mitigation</u>
Shrub Grassland	544	3,427	- 972	263
Woodland	235	1,669	- 1,204	415
Savannah	223	937	- 506	87
Marsh	149	784	- 723	165
Cropland	430	1,720	0	0
River	8,757**	68,060**	- 8,128	4,781*
Dredge Cut	643	5,337	- 4,803	2,825*
TOTAL	10,981	81,934	-16,536	

*Losses cannot be mitigated

**Includes islands inundated by the river

Losses of river and dredge cut habitat are, in our opinion, irreversible and could not be mitigated. Losses of terrestrial habitats could be mitigated by acquiring or by taking easements on acreages of similar habitats and managing the lands for the benefit of wildlife. Table 2, Column 5, illustrates the acreage required for mitigation, by habitat type, for each habitat occurring within the project area. The estimates of lands needed are based on the relative values of existing habitats in the area. They reflect the need to accomplish mitigation, but not necessarily a direct need for additional land acquisition over what would otherwise be acquired for project purposes. In determining mitigation needs in this analysis, future land use of lands to be purchased for other project purposes was assumed to be similar to existing use. However, if the lands were to be managed for wildlife, it appears that mitigation of up to 2,996 habitat "units" of project related losses could accrue. Although projected real estate "take lines" were not provided in the planning materials furnished this office, a preliminary estimate, for planning purposes only, was obtained from

Mr. Randy Leu, COE, Omaha, Nebraska. The boundaries used for planning are roughly denoted in Attachment 1. Table 2a illustrates, by habitat type, the losses mitigated by establishment of a wildlife management program on these estimated project lands, as well as reflecting remaining unmitigated losses.

TABLE 2a. MITIGATION POTENTIAL - PROJECT LANDS, REREGULATION RANGE 3

Habitat Type Within Takeline	Existing Acres Within Takeline	Habitat Units Gained	Approximate Habitat Units & Acreages Still Required for Mitigation	
			Habitat Units	Acres
Shrub Grassland	38	141	- 831	225
Woodland	39	113	-1,091	376
Savannah	28	162	- 344	59
Marsh	0	0	- 723	165
Cropland	430	2,580	+2,580	+430*
TOTAL	535	2,996		

*This figure reflects a gain in acreage of cropland habitat

With this alternative, changing land use of cropland acreage to benefit wildlife would still leave an unmitigated in kind habitat loss. These losses with the exception of marsh habitat could also be mitigated by the purchase and management for wildlife of additional bottomlands on the south side of the river in Section 34 or 35, T27N, R41E.

Additional Units, Reregulation Dam at Range 4 (R.M. 1763.8)

Construction of a reregulation dam at Range 4 would have many of the same effects on fish and wildlife resources as the proposed structure located at Range 3. If sufficient storage is provided to maintain "perfect" regulation and if adequate minimum flows are maintained during shutdown periods, habitat alterations would be limited to the area between the reregulation structure and Fort Peck Dam. The reservoir formed by this dam would inundate approximately seven miles of the Missouri River and 568 acres of riparian and flood plain habitat, including 327 acres of island habitat. The reservoir would cover 2,096 surface acres and would undergo daily fluctuations of up to 13 feet.

One of the major differences between the two dam sites would be the elimination of the use of the dredge cuts located west of Highway 249 for active storage under the Range 4 proposal. The planning information provided excludes the dredge cuts and assumes that a low level structure would be constructed at the site of the Highway 249 bridge. This structure would greatly reduce the magnitude of the daily water level fluctuations occurring within the dredge cuts and would provide a much stabler aquatic environment. With proper management, a viable sport fishery could be maintained in this area. The Range 4 proposal, however, does require inundation of slightly larger acreages of terrestrial habitats.

Losses of Canada goose nesting habitat on islands within the reregulation reservoir would be very similar to losses occurring with the Range 3 proposal. Nesting habitat along the dredge cut shoreline, however, would not be altered.

Daily stage fluctuations would not occur in the Duck Creek area with this alternative. As a result, little change in habitat conditions for wintering mallard ducks would be anticipated unless the birds relocated to open areas within the reregulation pool or to areas immediately below the reregulation dam. Relocation of this population to these areas would severely compound winter feeding problems.

As in the Range 3 proposal, a reregulation dam constructed at Range 4 would provide a physical barrier to movement of fishes. Paddlefish access to the dredge cuts would be eliminated. Movement of sauger and walleye into the Fort Peck tailrace area would also be terminated. A similar tailrace fishery for these species might develop below the reregulation dam, as outlined for the Range 3 proposal. Highly fluctuating water levels combined with a rapid turnover rate of water within the regulation pool would result in a relatively sterile aquatic environment in the reservoir. A significant sport fishery is not anticipated in that area.

Alteration of aquatic and terrestrial habitats occurring with the Range 4 alternative are displayed in Table 3.

TABLE 3. HABITAT SUMMARY - ADDITIONAL UNITS, REREGULATION RANGE 4

<u>Habitat Type</u>	<u>Existing Acres</u>	<u>Existing Habitat Units</u>	<u>Net Habitat Units Lost or Gained (Annualized)</u>	<u>Approximate Acreage Required for Mitigation</u>
Shrub Grassland	760	4,788	- 1,149	311
Woodland	466	3,309	- 2,066	712
Savannah	453	1,903	- 533	92
Marsh	186	1,042	- 643	146
Cropland	561	2,244	- 132	22
River	8,866**	68,873**	- 10,943	6,437*
Dredge Cut	643	5,337	- 1,601	942*
TOTAL	11,935	87,496	- 17,067	

*Losses cannot be mitigated

**Includes islands inundated by the river

Losses of river and dredge cut habitats caused by the project cannot be mitigated in our opinion. As with the Range 3 proposal, however, terrestrial losses could be mitigated by increasing the carrying capacity for wildlife on similar habitats.

Table 3a denotes habitat losses which could be mitigated in this way on project acquired lands. The preliminary takelines used in these assumptions were obtained from Mr. Randy Leu, COE, Omaha, Nebraska. The boundaries used for planning are denoted in Attachment 2.

TABLE 3a. MITIGATION POTENTIAL - PROJECT LANDS, REREGULATION RANGE 4

<u>Habitat Type Within Takeline</u>	<u>Existing Acres Within Takeline</u>	<u>Habitat Units Gained</u>	<u>Approximate Habitat Units & Acreages Still Required for Mitigation</u>	
			<u>Habitat Units</u>	<u>Acres</u>
Shrub Grassland	244	903	- 246	67
Woodland	258	748	-1,318	454
Savannah	273	1,583	+1,050	+181*
Marsh	66	290	- 353	80
Cropland	528	3,168	+3,036	+506*
TOTAL	1,369	6,692		

*These figures represent a net gain in habitat

Table 3a, Column 5, shows that gains in habitat units for savannah and cropland habitat types would occur with the management program. Unmitigated losses of shrub grassland, woodland, and marsh would still remain. With the exception of marsh habitat types, much of the unmitigated loss of the remaining habitat types could be compensated for by conversion of the cropland acres within the "take line" to other vegetative types which would be of greater value to wildlife.

Unresolved Issues

In our planning aid letter of April 10, 1975, we discussed the subject of borrow sites that would be required for the 200,000 cubic yards of embankment material needed for construction of the reregulation dam at either Range 3 or 4. We have not yet received any information delineating the borrow sites under consideration for this purpose. As a consequence, this memorandum does not assess habitat disturbances resulting from borrow removal.

Our April letter also addressed the subject of the need for additional power transmission facilities. We understand the Bureau of Reclamation is the marketing agency for any additional power that may be generated at Fort Peck Dam. Also we understand that an additional 230 kv transmission line would be required if the proposed hydropower facilities were built at Fort Peck. The line would go either to Bismarck, North Dakota, or to Garrison Dam, North Dakota, although specific routes have not been designated. We have not yet received any information regarding proposed transmission corridors. Consequently, we do not understand how the feasibility or advisability of the Fort Peck hydropower alternatives, or any other alternative, can be determined until alternative

transmission routes are selected and studied as part of the overall analysis. A transmission line of 230 kv magnitude would have potentially serious effects on fish and wildlife habitats. In any E.I.S. covering the development of additional power the ultimate use of this power and resultant environmental impacts should be covered.

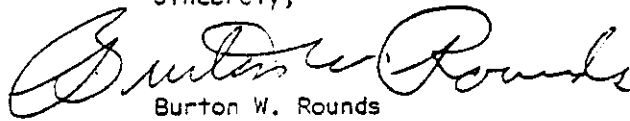
Conclusions and Recommendations

- (1) The U.S. Fish and Wildlife Service opposes 185 megawatt power additions at Fort Peck without reregulation because of the significant adverse alterations of fish and wildlife habitats, particularly aquatic habitats, that would occur.
- (2) Of the power proposals advanced, the Range 3 alternative would be the least damaging to existing fish and wildlife habitats. Construction of the reregulation dam at Range 4 would result in less alteration of existing aquatic habitat, but would affect existing terrestrial habitats to a greater degree. If, however, assumptions for land acquisition used in this analysis are correct, and if management of these acquired lands is dedicated to wildlife purposes, mitigation of most terrestrial wildlife losses for Range 4 could be accomplished on project lands. Therefore, the U.S. Fish and Wildlife Service would favor the Range 4 alternative provided the project lands are managed for wildlife with operation and maintenance funds provided as a cost to the project. If the land acquisition and management provisions are not provided for, the Range 3 alternative would be preferred.
- (3) Any reregulation dam constructed should be designed and operated to provide a minimum instantaneous downstream flow of at least 3,000 cfs.
- (4) Selection of borrow areas for the 200,000 cubic yards of embankment should be made to provide for minimum disturbance of surface vegetation, especially riparian vegetation. We request the opportunity to provide you with our assessment of the various borrow site alternatives when these areas are eventually selected.
- (5) Utilization of any tailrace fishery which may develop below the reregulation structure will be dependent upon provision of public access and the construction of adequate visitor facilities. Road access, parking area, health facilities and a boat launching facility should be provided. These facilities should be designed in cooperation with the Montana Fish and Game Commission and the U.S. Fish and Wildlife Service.

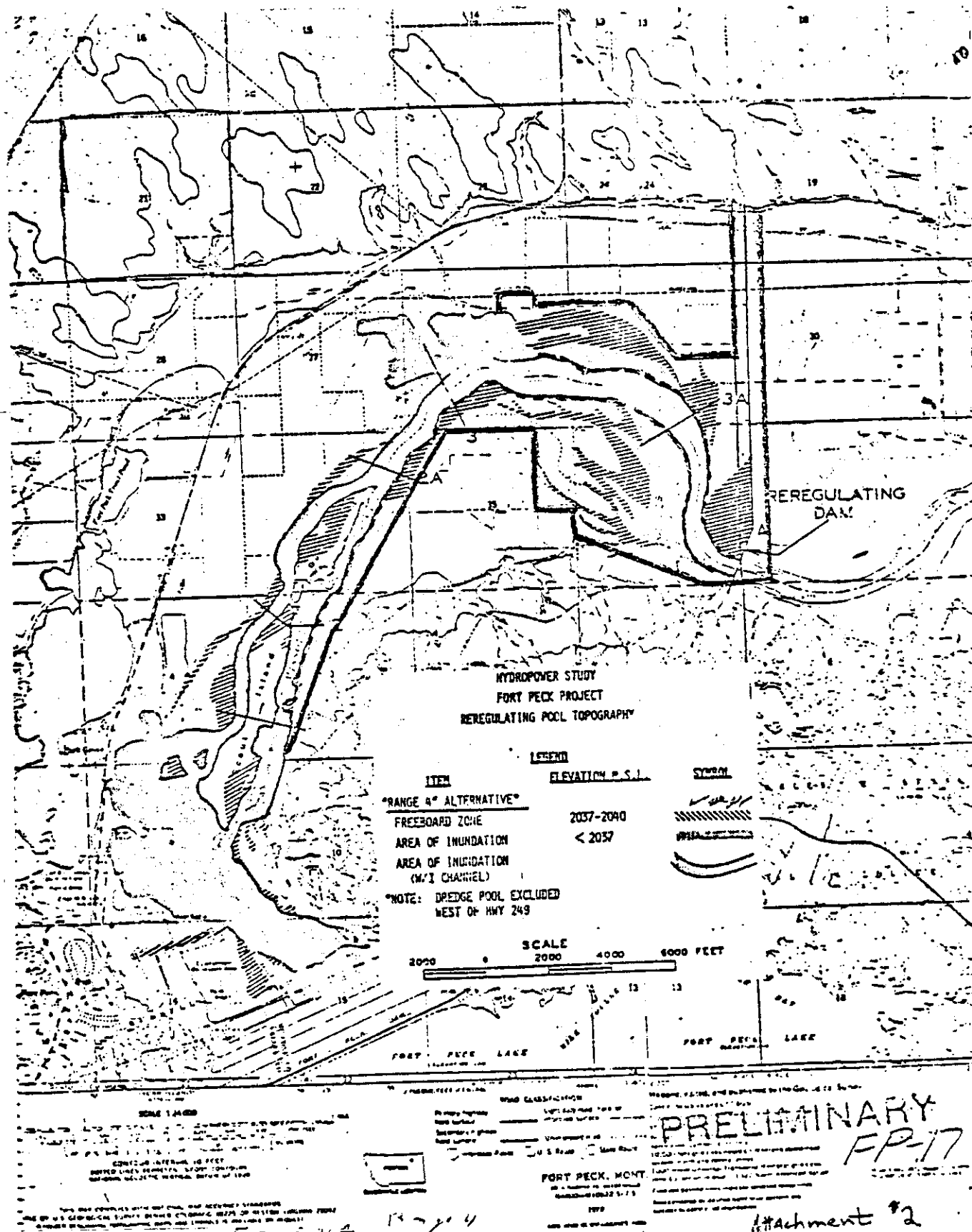
We appreciate the opportunity to review the proposed power and reregulatory project. We plan to provide our assessment of the effects of the Fort Peck hydropower alternatives on fisherman and

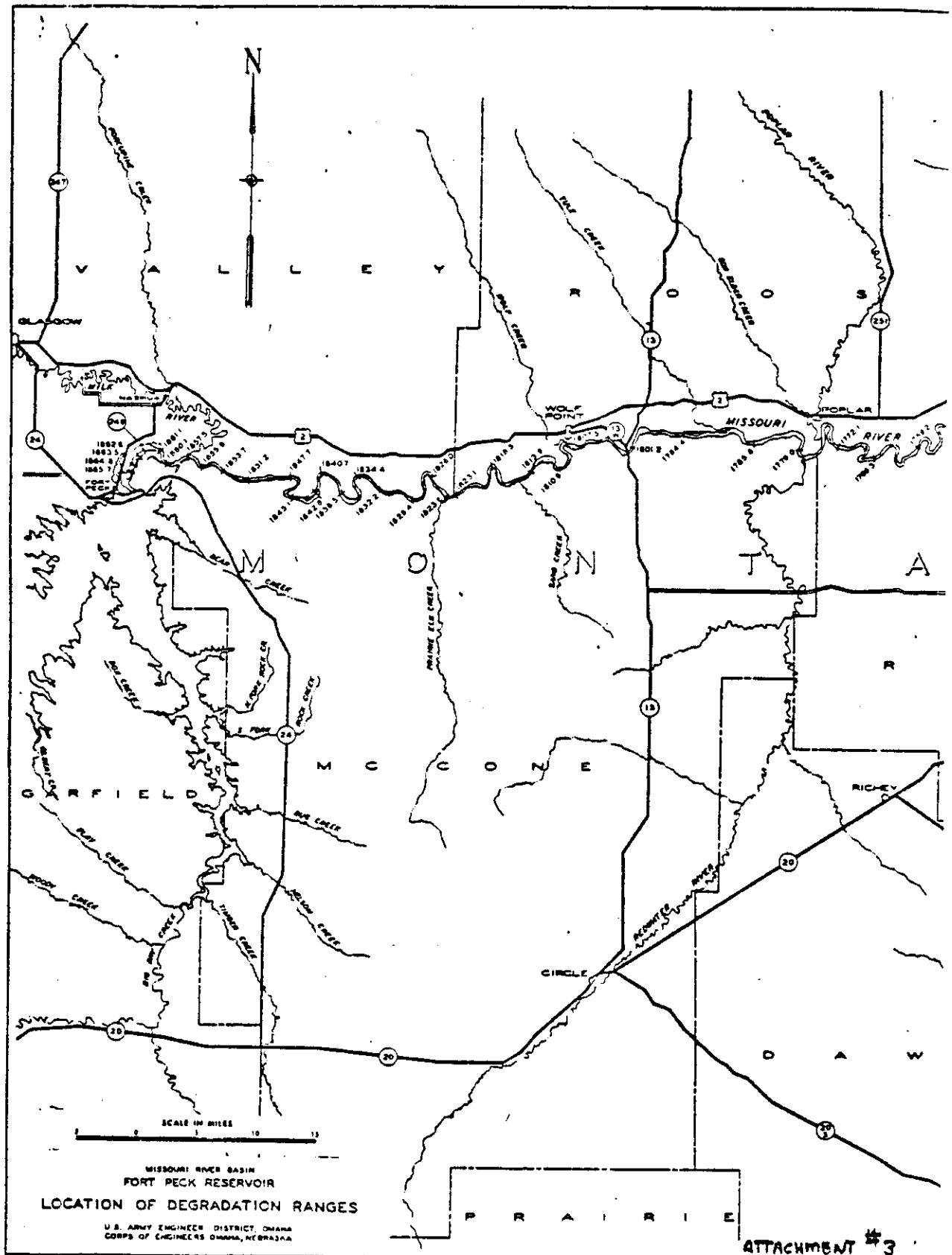
hunter-use as well as our assessment of only one hydropower unit without reregulation in a forthcoming planning aid memorandum. Please keep us informed of the status of your studies so that our continuing efforts on this project may be fully responsive to the requirements of the Fish and Wildlife Coordination Act.

Sincerely,

A handwritten signature in cursive script, reading "Burton W. Rounds". The signature is written in dark ink and is positioned above the printed name and title.

Burton W. Rounds
Area Manager







United States Department of the Interior
FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

AREA OFFICE: SOUTH DAKOTA-NEBRASKA
POST OFFICE BOX 250
PIERRE, SOUTH DAKOTA 57501
January 12, 1977

General William E. Read
Missouri River Division
U.S. Corps of Engineers
215 North 17th Street
Omaha, Nebraska 68102

Dear General Read:

This letter is provided to identify important fish and wildlife resources and provides our preliminary assessment of the affects on those resources by components of the Missouri River Umbrella Study. Your proposals at this time include a pumped-storage hydropower site in Gregory County, South Dakota; bank protection below Fort Randall Dam at 21 sites; and the inclusion of the open river reach, to include extensive bank stabilization, of the Missouri River between Gavins Point Dam and Ponca, Nebraska, as a National Recreation River under the National Wild and Scenic River Act, Public Law 90-542. Our analysis is prepared in response to your January 20, 1975, and April 17, 1975, requests for assistance in the assessment and evaluation of alternatives being studied under authorities contained in Senate Report Number 93-1032.

This letter has been informally coordinated with the Nebraska Game and Parks Commission and the South Dakota Game, Fish, and Parks Commission. However, it does not constitute the official report of the U.S. Fish and Wildlife Service within the meaning of Section 2 of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et. seq.), nor does it discharge our responsibilities under the National Environmental Policy Act of 1969 (Public Law 91-190, 83 Stat. 852-856).

This letter establishes our position and provides suggestions for future efforts on the Missouri River Umbrella Study. A summary letter and overall position on the entire Umbrella Study will be provided to you by our Regional office after review of the Draft Survey Report. That letter should accompany your Survey Report to Congress.

Gregory County Pump-back Storage Proposal

Information provided us in your April 19, 1976 letter and subsequent contacts between our agencies indicates that the proposed Gregory County pumped-storage hydropower site will be located about 35 miles upstream from Fort Randall Dam on the right bank. The hydropower proposal would

consist of 3 units with an installed net capacity of 1,180 MW, an average gross head of 711 feet, and would discharge 24,740 c.f.s. during generation. Proposed generation schedules indicate that maximum daily generation would be 9 hours and only occur on weekdays. For economic reasons, generation will not exceed 1,000 hours per year.

The proposed pumping discharge into the forebay is estimated at 16,490 c.f.s. and is scheduled for 8.3 hours per day on weekdays, and 13.0 hours per day on weekends.

The Gregory County pumped-storage proposal will require 1,550 acres of land to provide a forebay water surface area of 1,155 acres. A 30,100 foot, ring levee will be required around the forebay. The maximum drawdown in the forebay is estimated at 61 feet.

Operation of the proposed Gregory County pumped-storage unit on Lake Francis Case will have impacts on water quality, fish populations, and benthic organisms. Impacts associated with water quality will include increased turbidity and possible increases in iron and manganese concentrations. Impacts on fish populations will include mortality resulting from both the pumping and generating cycles of the unit and disruption of spawning migrations. Benthos production will be decreased due to increased siltation and disruption of substrate in the tailrace area.

The White River, located approximately 36 miles upstream from the proposed Gregory County pumped-storage site, deposits a significant quantity of sediment in the project area. This river often carries a heavy sediment load, consisting primarily of colloidal clays, which have formed a delta in Lake Francis Case. This delta is gradually moving down the lake and will eventually include the proposed project area.

Present water quality data indicates that turbidity levels in Lake Francis Case meet the state water quality standard of 50 Jackson turbidity units (JTU's), except in the White River delta area where 240 JTU's have been recorded. The exceedance of this water quality standard appears to be a result of wind and wave action. Considering the downstream movement of the White River delta and the intake and discharge of water by the pump-back unit, turbidity levels in this area of the lake will increase. What is now a localized biological problem will become more widespread and of longer duration due to turbulence caused by the pumping and generating operations. Consequently, the combination of the above factors will cause a more widespread exceedance of water quality standards and will decrease the quality of the water.

The proposed project will have little impact on lake temperature or dissolved oxygen. Current data indicates that neither a distinct thermocline nor oxygen deficiency occur in the lake. The maximum temperature differential existing near the project area generally does not exceed 10 degrees Fahrenheit from surface to bottom and dissolved oxygen levels

are usually 90 to 100 percent of saturation.

Another problem apparently associated with the White River delta is high concentrations of iron and manganese. State water quality criteria indicates that iron concentrations should not exceed 0.3 mg/l and manganese should not exceed 0.05 mg/l. Iron concentrations of up to 1.11 mg/l have been measured immediately downstream from the White River delta and manganese concentrations have been measured as high as 0.2 mg/l. These data indicate that the White River is the source of high concentrations of iron and manganese; however, this has not been verified. It is assumed that operation of a pump-back unit in conjunction with White River sediments will cause iron and manganese standards to be exceeded on a more widespread scale than presently exists.

Pump-back unit operation will cause some artificial nutrient cycling in the project area which in turn will stimulate the photosynthetic activity of phytoplankton. However, in this case, this activity will be offset by increased turbidity levels and the subsequent reduction of the photic zone.

Benthos production in the project area will be sharply decreased or eliminated. Physical disruption of the substrate by currents from generating and pumping, and increased deposition of sediments will make the lake bottom unsuitable for benthic organisms. This production decrease will result in a decrease of food base available to fish populations inhabiting the area.

Detrimental impacts on existing fish populations will occur with operation of the pumped-storage unit. Some mortality will occur because of increased turbulence. Also, fish will be pumped from the afterbay (Lake Francis Case) to the forebay and then returned to the afterbay during the generating cycle. It is doubtful these fish will survive the roundtrip.

The water level fluctuation of Lake Francis Case caused by pump-back operations will be negligible. The relatively small size of the forebay pool (47,100 acre-feet) and larger size of the afterbay (Lake Francis Case - 5,600,000 acre-feet) will cause a water level fluctuation of 0.2 of a foot per day on weekends when the pumping phase of the operation is in effect.

In summary, we are not opposed to development of the Gregory County pump-back unit; however, we believe the Corps should be aware of some adverse impacts that could occur. We recommend that during Phase 1 of your planning process, you consider methods such as screening the penstock area of the afterbay and incorporate into your design adequate energy dissipaters to disperse the forces that will contribute to expected turbidity problems from generating power.

Bank Stabilization Below Fort Randall Dam

We are pleased the Corps has deferred development of additional hydropower units in Fort Randall Dam. It is our understanding your proposal concerning the reach of river below Fort Randall Dam is limited to bank protection at selected locations on the high banks of adjacent agricultural land, and possibly to preserve from erosion certain areas of environmental value such as the Karl Mundt National Wildlife Refuge and areas near the natural fish spawning area. Your bank protection proposal includes 7 areas from Fort Randall Dam to Lewis and Clark Lake consisting of 21 sites.

Much of the present knowledge concerning the fishery and related resources of the Missouri River from Fort Randall Dam to Ponca, Nebraska, including Lewis and Clark Lake, has been provided by the U.S. Fish and Wildlife Service's North Central Reservoir Investigations. Their studies indicate 42 fish species were collected in Lewis and Clark Lake from 1956 to 1974. Studies in the Missouri River from Fort Randall Dam downstream to the lake and in Lewis and Clark Lake during the Summers of 1962 and 1963 indicated that the species composition of fish in the two areas was similar.

A Progress Report, Fort Randall Dam Tailwaters Gillnetting Survey, December 1974 - March 1975 (Dingle-Johnson F-15-R-10, Study No. IX, Job 7), dated October 1975, by the South Dakota Department of Game, Fish, and Parks, states, "The absence of any large concentrations of sauger in the tailwaters indicates the majority of the sauger overwinter in the river, possibly near their spawning grounds which are approximately 10 kl downstream from the dam."

Of special interest are paddlefish that migrate up the Missouri River from Lewis and Clark Lake to concentrate in the tailwater area below Fort Randall Dam. Although many factors affecting paddlefish migrations are not fully understood, it is believed that the rate of discharge at the dam is a prime factor influencing migration. In recent years, angler catches have indicated that paddlefish move into the tailwater area in May and June. This spring movement is probably associated with a spawning run that occurs in the Missouri River between Lewis and Clark Lake and Fort Randall Dam. Successful reproduction from this run has occurred in recent years. Consequently, a significant sport fishery for paddlefish exists when these fish are concentrated in the tailwater area.

Inasmuch as paddlefish move out of Lake of the Ozarks, Missouri, to spawn over gravelbars in the Osage River, paddlefish in Lewis and Clark Lake probably move to more natural river conditions to spawn. This assumption is supported by South Dakota Department of Game, Fish, and Parks studies conducted from December 1974 through September 1975 in which fry collections indicated some spawning occurred within 8.7 miles of Fort Randall Dam during the last week of May and the first two weeks

in June. The study further revealed that presence of paddlefish fry at a sampling station indicates paddlefish spawning occurred at or upstream from that station since fry are incapable of moving upstream against the current. Thus, fry collected at sampling stations below the natural spawning area must have hatched from eggs spawned within 8.7 miles of Fort Randall Dam. This 8.7 mile stretch includes the area which appears to have the most suitable substrate for paddlefish spawning in the river between Fort Randall Dam and Lewis and Clark Lake. This area also serves as a spawning ground for sauger and walleye from Lewis and Clark Lake according to research completed in the late 1960's by North Central Reservoir Investigations.

During the Summers of 1971 and 1972, North Central Reservoir Investigations conducted studies of protected areas in the upper portion of Lewis and Clark Lake and in the lower portion of the Missouri River from Springfield, South Dakota, to Chateau Creek to identify fish spawning and nursery areas. Three environmental conditions were common to the areas with the greatest abundance of young fish: little or no water current, water depth exceeding 3 feet and little or no fluctuation in water level.

The Karl E. Mundt National Wildlife Refuge was established in 1974 below Fort Randall Dam in an area that has become a major wintering site for bald eagles. The refuge area is one of the last remaining segments of riverbottom habitat. Plant communities on and adjacent to the refuge are remnants of what was once a common ecosystem along the Missouri River. The mature cottonwood trees, along with wild grape, dogwood, and wildflowers represent a unique wooded segment in a prairie setting. Wildlife on the area, in addition to eagles, include white-tailed deer, wild turkey, sharp-tailed grouse, an occasional prairie chicken, bobwhite, ring-necked pheasant, several species of hawks, fifty-five species of other birds and numerous small mammals.

Although the habitat has been altered, wildlife remains abundant in the reach of river downstream from the refuge to Lewis and Clark Lake. Woody habitat of importance occurs as dense stands of cottonwoods and willows along the bottomlands and on the larger islands. In timbered areas not heavily grazed, grasses, forbs, and wild rose provides the understory. An abundance of songbirds frequent the river bottom. Cormorants, pelicans, herons, and gulls are often seen. Bald and golden eagles, sparrow hawks, and red-tailed hawks have been observed.

Upland game habitat is characterized by an interspersed of grainfields, brushy areas, pastures, and hayfields of varying sizes. Pheasant, cottontails, and sharp-tailed grouse are common upland game species. Pheasant and cottontails are most numerous in the agricultural lands that are interspersed with brushy areas and idle acreages.

The American Peregrine Falcon (Falco peregrinus anatum), classified as Endangered under provisions of the Endangered Species Act of 1973, has been observed in the vicinity during winter months.

Existing bank stabilization structures have had adverse impacts on fish and wildlife resources along the lower Missouri River. For many years, the Fish and Wildlife Service has encouraged the Corps to mitigate damages attributed to this bank stabilization and channelization project. Only recently, the Corps has recognized this need. To date, there has been no mitigation except for the notching of dikes.

We have agreed to limited bank stabilization under the Corps' Missouri River Bank Stabilization and Demonstration project without the preparation of an environmental impact statement (EIS). The affect of the experimental project on fish and wildlife resources will be assessed upon completion of a limited number of demonstration sites. This assessment should be included in the EIS to be prepared on that project. Our only recourse at this time based on past fish and wildlife habitat degradation caused by bank stabilization and the need to evaluate these experimental bank stabilization structures, is to oppose all bank stabilization proposed as part of the Missouri River Umbrella Study.

Recreational River Proposal

It is our understanding that your proposed plan for the Missouri River from Gavins Point Dam to Ponca State Park (approximately 60 miles) is multipurpose and depends on the river being designated a National Recreation River as part of the National Wild and Scenic Rivers system which was established by the Wild and Scenic Rivers Act, Public Law 90-542, approved October 2, 1968. Criteria set forth by the act requires that eligible rivers with their immediate environments possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. In addition to meeting one or more of the preceding criteria, a Recreation River must be free-flowing and readily accessible by road or railroad. It may have some development along its shoreline, and it may have undergone some impoundment or diversion in the past. The Missouri River in this area apparently possesses the necessary attributes, at this time, to make it eligible for Recreation River status.

Within this 60 mile reach of Missouri River, there are several proposed Demonstration and Evaluation bank stabilization sites. Also, as part of the Missouri River Umbrella Study, numerous bank-lined hardpoints, segmented revetments, channel blocks, flow control structures, and other stabilization structures are proposed, all of which will have adverse impacts on fish and wildlife resources in this last remnant of "natural river".

A study conducted by the University of South Dakota from 1972 to 1973 revealed the presence of 50 fish species between Gavins Point Dam and Rulo, Nebraska. The species composition was similar in both the unchannelized and channelized portions of river. However, based upon catch per unit effort statistics, the standing crop of ichthyofauna was much greater in the unchannelized river. The study also revealed that the number of microhabitats and niches is greater in the unchannelized river resulting in successful colonization of all habitats by more species.

A joint study by the University of South Dakota and South Dakota State University entitled "An Ecological Study of The Missouri River Prior to Channelization", dated March 1974, indicates that cattail marsh habitat along the Missouri River below Gavins Point Dam, and to a lesser extent the sandbar habitat, are intensively utilized as nursery grounds by immature fish of many species. Species diversity, instantaneous standing crops, and production in the cattail habitat was relatively high, suggesting that these areas are important to the stability and integrity of this large lotic ecosystem. The study also indicated that both habitats are abundant in the unchannelized river, but are infrequent in the channelized river.

In the proposed Recreation River segment, water velocities and depths, and bottom conditions all vary, furnishing the paddlefish its natural habitat conditions. Existing deep holes provide wintering areas for paddlefish and large catfish. These conditions are essential if the present sport fishery is to maintain itself.

Existing chute and backwater areas are essential for maintaining the present and future fishery and the reproduction necessary to sustain that fishery. As long as the Missouri River maintains its width from Gavins Point to Ponca, Nebraska, the shallow water areas that provide the essential nursery habitat will be preserved.

Islands that are presently 2 to 4 feet above the river provide important habitat for furbearers. Similar islands containing willows are important to deer. The riparian woodlands and large islands such as Hog and Goat, are important wintering areas for deer. Riparian areas are being cleared and the rate of clearing is expected to increase adjacent to areas where streambank stabilization occurs. These areas also are used by wintering eagles and provide scarce habitat for wild turkey.

This reach of the Missouri River is an important feature of the Central Flyway. Blue, snow, and Canada geese are plentiful in the spring and fall during migration. The low sandbars provide loafing and resting areas for both ducks and geese. Excellent waterfowl hunting occurs along this reach of the Missouri River.

Diverse habitats comprising this reach of the Missouri all contribute to the esthetic and the biological value of the river. As these habitats are degraded, so is the esthetic quality and biological productivity of the area.

In summary, we certainly agree with the concept of a Recreation River and believe it is needed. However, we are concerned that if all of the proposed bank stabilization structures are constructed, as presented to us during the October 28, 1976 meeting in Grand Island, eligibility for Recreation River status would become questionable. To date, there have been no assurances that lands needed to protect the integrity of the Recreation River will be secured in fee title or by easements prior to bank stabilization. We agreed to the construction of a limited number of demonstration sites under the Missouri River Bank Stabilization and Demonstration project without an Environmental Impact Statement, but reserved the right to evaluate the affects of these units before concurring in the need for additional structures. It is conceivable that the demonstration structures themselves could disqualify the status of the river.

Our observation of structural control methods leads us to believe that they are self-perpetuating. That is, after one set of structures are completed, they divert flows to another area resulting in new erosion and further bank stabilization. The end result would be that the same practices that destroy fish and wildlife habitat and recreation areas (bank stabilization) would be used to preserve the environment for these same purposes. Or to state it another way, the river is independently dynamic. After a set of structures are in place, the natural dynamics of the river will change erosion pressure points to portions of the river that have not been stabilized, thereby "creating a need" to protect these areas and so on and so on down the system until the entire river is stabilized.

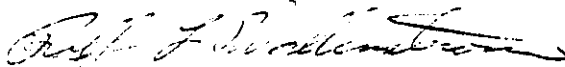
During a November 10, 1976 meeting in Omaha, your staff indicated that approximately 16 million acre-feet of water can be marketed in the future from the Missouri River for irrigation, municipal and industrial purposes. If and when this occurs, it could have an affect on the flow regime of the river. It only seems logical to assume that with less water, there would be less erosion. This being the case, bank stabilization would only serve its purpose for a relatively short time. Since public monies are to be spent on private lands to protect private interest, we believe it would be in the public interest to purchase in fee title those areas that are presently eroding and devote these lands to public programs. Acquisition of eroding areas would seem to be the most economical method of solving the erosion problem. Also, there are countless examples on the lower Missouri River where bank stabilization structures have accelerated the clearing of riparian timber to the point where there are few remaining areas left that provide adequate fish and wildlife habitat.

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In conclusion, we believe that the Gregory County pump-back hydropower proposal can be environmentally acceptable with proper planning and adequate environmental safeguards as described in this letter.

We further believe that all proposed bank stabilization as part of the Umbrella Study should not be implemented at this time. After the Missouri River Bank Demonstration and Evaluation project is evaluated, the need to accomplish further bank stabilization should be restudied. The feasibility of establishing a recreation river from Gavins Point to Ponca, Nebraska, also should be restudied at that time.

Sincerely,



Rolf L. Wallenstrom
Area Manager

cc: Regional Director, Denver, CO (ENV)
Grand Island, NE (ENV)



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Federal Building
316 N. 26th
Billings, MT 59101
Jan. 14, 1977

General Reed
Department of the Army
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, NE 68101

Dear General Reed:

This planning aid letter provides our revised assessment of the effects on fish and wildlife resources of alternative proposals for hydropower developments downstream of Fort Peck Reservoir. The letter also includes our initial review of four "active" erosion sites below Fort Peck Reservoir where bank stabilization measures are proposed. The analysis was prepared in response to your July 23, 1976, letter updating previous planning information and confirming your decision to return to the reregulation concept for hydropower additions at Fort Peck Dam. Several minor errors in our previous letters have also been corrected.

This letter has been informally coordinated with the Montana Department of Fish and Game (letter of comment attached) and supersedes our earlier planning aid letters of April 15, 1976 and April 20, 1976. However, this letter does not constitute the final report of the U.S. Fish and Wildlife Service within the meaning of Section 2 of the Fish and Wildlife Coordination Act (48 Stat. 401 as amended; 16 U.S.C. 661 et. seq.), nor does it discharge our responsibilities under the National Environmental Policy Act of 1969 (Public Law 91-190, 83 Stat. 852-856).

Introduction

The National Economic Development (NED) alternatives evaluated herein are limited to those occurring immediately downstream of Fort Peck Dam. These include: (1) the addition of two turbines with a rated capacity of 185 megawatts with a reregulating dam at river mile 1766.23 (Range 3); (2) the addition of two turbines with a rated capacity of 185 megawatts with a reregulating dam at river mile 1763.84 (Range 4); and (3) four bank stabilization proposals at river miles 1758, 1746, 1677 and 1620.



We understand that main stem dam proposals at the Fort Benton and Cow Creek Sites, pumped-storage alternatives at Fort Peck Reservoir, and 2-unit additions without reregulation, have been dropped from consideration under the Missouri River "Umbrella Study." Also, it is understood that there are no plans to evaluate water logging problems within Montana as part of this study. Accordingly, none of these alternatives or potential alternatives were addressed.

The primary objective of your current study at Fort Peck, as we understand it, is to determine the feasibility and advisability of constructing two additional hydropower units in Fort Peck Dam. The additional facilities would provide increased peaking capabilities at the dam, but would not result in a net increase in total power production. Although significant within-bank storage fluctuations downstream from the powerhouse would accompany additional peaking capabilities, no significant operational changes of Fort Peck Reservoir would be required according to information provided us. Only very small changes in hourly, daily, and weekly patterns in the reservoir elevations are anticipated. These changes are estimated to cause accumulated variations of not more than 0.1 to 0.2 feet over those occurring under current operations. On that basis, we have assumed that no significant alterations of fish and wildlife habitats associated directly with the reservoir would occur. We are considering the area of influence to be limited to the area downstream from Fort Peck Dam.

Fish and Wildlife Resources

The Missouri River, within the area of project influence, has been highly modified in recent decades by the construction and operation of Fort Peck Dam. Fort Peck Reservoir, formed when the gates of the dam were closed in 1937, inundated approximately 247,000 acres of land, including more than 134 miles of Missouri River bottom land. In addition, the natural flow regimes of the river below the dam have been drastically altered to meet power, flood control, and irrigation demands. Major changes in downstream water quality have occurred. Fall and spring temperature changes were slowed and modified, turbidity was reduced and dissolved oxygen levels were increased. The accumulated effects of these changes on fishes of the Missouri River are apparent when relative abundances of given fish species occurring in the tailrace are compared to relative abundance estimates farther downstream. Forty species of freshwater fish are now known to occur in the Missouri River below Fort Peck Dam. Twenty-eight of these species are native to Montana and 12 species are considered to be exotics. Of the 40 species occurring in the tailrace, only 17 species are rated as being abundant or common, whereas 27 species are rated in these categories further downstream. Abnormally cool water temperatures, from low level water releases and the rapidly fluctuating water levels in the river occurring from power generation, are believed to be prime factors affecting relative abundance of fishes in the tailrace area.

Of special interest are paddlefish that migrate up the Missouri River from Garrison Reservoir and concentrate in the dredge cuts below Fort Peck Dam. Although many factors affecting paddlefish migrations are not fully understood, it is believed that increased flows from downstream tributaries, warmer water temperatures and a lengthening photo period are prime factors influencing migration. Another factor to be considered is the productivity level of water in the dredge cut areas. Higher summer temperatures and a low rate of water exchange in the dredge cuts, as compared to adjacent waters in the tailrace, account for higher productivity in the cuts. These conditions are attractive to paddlefish, which are detritus and plankton feeders, and may partially or largely account for the concentration of these fish in this area. However, the significance of the dredge cut "habitats" to the life history requirements of the Missouri River paddlefish population are not known.

In any case, a significant sport fishery for paddlefish exists when these fish are concentrated in the dredge cuts following migration. A walleye and sauger sport fishery also occurs in the tailwater area below Fort Peck Reservoir when these fish are concentrated during periods of favorable water releases and temperatures. Lake trout, an introduced species, is also considered an important fish in the tailrace area.

The Fort Peck project has resulted in major land-use changes below the dam. The large dredge cuts were created when fill was excavated for dam construction. Additional land acreages were committed to recreational purposes and wildlife management. The accumulated effects of these changes on the fauna of the upper Missouri River Valley have been significant.

Though modified, wildlife resources in the area remain varied. Woody habitat of importance occurs as dense stands of cottonwoods and willows along the bottomlands and on the larger islands. In timbered areas not heavily grazed, grasses, forbs, and wildrose provide the understory. An abundance of songbirds frequent the river bottom. Cormorants, pelicans, herons, and gulls are often seen. Bald and golden eagles, sparrow hawks, red-tailed hawks and snowy owls have been observed.

Upland game habitat is characterized by an interspersed of grain fields brush areas, pastures, and hayfields of varying sizes. Pheasants, cottontail rabbits, and a few Hungarian partridges are common upland game species. Pheasants and cottontail rabbits are most numerous in the agricultural lands that are interspersed with brushy areas and idle acreages.

The U.S. Fish and Wildlife Service has established a nesting flock of Canada geese in this area. Islands and dredge cut ponds furnish most of the habitat used by geese for nesting.

Islands of particular importance are Scout Island and Duck Island. These

rather large islands, 193 acres and 95 acres respectively, contain marshy areas which provide secure resting and nesting areas for migratory waterfowl. For example, about 40 goslings (Canada geese) have been produced annually in this area during the last three years. Although whitetail and mule deer utilize both of these islands, Scout Island, which is not grazed by domestic livestock, is of particular importance to them. The diverse vegetation occurring on this island provides excellent escape cover for pheasants as well.

The area below Fort Peck Dam is significant to wintering waterfowl, particularly mallard populations. The seepage from the main dam is collected in sumps. The water from these sumps is discharged below the dam, forming a stream called Duck Creek. This warm water stream remains open during the winter and at times is utilized by up to 20,000 wintering mallard ducks. This large aggregation of ducks has created several management problems. During years when there are no other ice-free areas in the vicinity and snow covers the surrounding grain fields, natural feeding areas are largely eliminated. Under these conditions, many of the birds become weak and some starve. Because the population is highly visible to the public, there is considerable interest in and pressure for supplemental feeding of the birds.

Another potential problem with this heavily concentrated wintering population is the possible outbreak of DVE (Duck Viral Enteritis). If this disease were to break out, the entire population would have to be destroyed and disposed of to prevent the spread of infection to other populations.

The American Peregrine Falcon (Falco peregrinus anatum) classed as Endangered under provisions of the Endangered Species Act of 1973, has been observed during the winter months in the vicinity of Duck Creek. The area is probably attractive to the birds because of the high concentration of wintering mallards there.

The Director, U.S. Fish and Wildlife Service, under authorities contained in the Endangered Species Act of 1973 (16 U.S.C. 1531-1543) issued notice of his intent in the Federal Register, Vol. 41, No. 134, Monday, July 12, 1976, of amending Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations to include the Bald Eagle, (Haliaeetus leucocephalus) as Endangered in the conterminous 48 States of the United States, except in Washington, Oregon, Minnesota, Wisconsin, and Michigan, where the species would be listed as Threatened. If the proposed rule making is finalized, Critical Habitat (pursuant to Section 7 of the Endangered Species Act of 1973) for the species may be determined. Areas encompassed by the proposed Ft. Peck reregulation dams would likely need to be considered in these determinations.

The Smithsonian Institution has prepared lists, by states, of potentially threatened or endangered plant species. Ten species within these categories were identified as occurring in Montana. The Director of the U.S. Fish and Wildlife Service is in the process of determining if these plants should in fact be declared as Endangered or Threatened Species. We have no knowledge that any of these plants occur in the proposed project area.

Procedure and Existing Situation Analysis

The National Coordinating Committee (NCC) for fish and wildlife conservation in Federal water development programs recommended in November 1973, that the U.S. Fish and Wildlife Service (USFWS) move promptly to establish and implement a system of habitat evaluation based on non-monetary measures of habitat value in order to more adequately display the beneficial and adverse effects of water development projects on fish and wildlife resources. In response, the USFWS organized a committee to develop ecological planning and evaluation procedures. The committee was composed of representatives from state fish and wildlife agencies, private conservation organizations, and USFWS.

The Joint Federal-State Conservation Organizations Committee completed a draft proposal in January 1974 entitled, "Ecological Planning and Evaluation Procedures." These procedures have been used to evaluate the hydropower additions at Fort Peck Dam.

During September 1975, a team of three biologists (Dick Trueblood, Montana Department of Fish and Game; Mike Erwin, USFWS; and Doug McDonald, Corps of Engineers, Omaha, Nebraska) delineated and rated terrestrial habitat in the area of the reregulatory proposals for the purpose of establishing baseline or existing habitat conditions. A total of five habitat types was described.

- (1) The woodland type consists of an overstory with a closed or nearly closed canopy of cottonwoods. In this type, the understory varies from only one or two species of plants to a very diverse intermixture of rose, buffaloberry, willow, snowberry, grass and silver sage.
- (2) The savannah type consists of an overstory of widely scattered cottonwoods with an understory of grass or a mixture of silver sage, grass and rose.
- (3) The marsh type consists of a variety of plant species with the number of species occurring in any one location varying, but including one or more of the following: willow, cattail, bullrush, cottonwood saplings, equisetum, sedge and grass.

(4) The shrub grassland type is composed of two vegetative associations in the bottomlands and one in the uplands. By far the most prevalent in the bottomland was the silver sage-grass type; buffaloberry, rose, snowberry, silver sage and grass comprised the other. In the uplands, big sage and miscellaneous grasses are the dominant components of the shrub grassland habitat type.

(5) The cropland type consists primarily of wheat, barley and alfalfa.

The aquatic habitats within the project area were also analyzed and subjectively evaluated by a team of aquatic biologists. (Jim Leibelt and Richard Johnson, Montana Department of Fish and Game; Dennis Christopherson, USFWS; and Chuck Frith, at that time of the Corps of Engineers, Omaha, Nebraska.) The evaluation was based on limited available biological data, using other Missouri River mainstem reservoir tailraces as a basis for comparison. Two habitat types were identified:

(1) The river type includes the tailrace and downstream reaches of the Missouri River, including backwater areas.

(2) The dredge cut type is limited to the pool areas located west of Highway 249.

These terrestrial and aquatic habitat types were subjectively rated on a scale of 1 to 10, with 10 representing the maximum attainable value of the habitat type for meeting habitat requirements of the species being evaluated when compared to similar types in the region. The region is an arbitrarily defined geographical area with comparable climatological, edaphic and topographical characteristics. Since conclusion of the field analysis, the evaluation procedures have been revised and now require a rating system on a scale ranging from 1 to 100. The original ratings were interpolated on this new scale without affecting their respective values so that the revised procedures for data assimilation could be used.

The woodland habitat was rated at an average value of 71 habitat units per acre under present conditions. Savannah, formed to some extent by clearing woodlands for grazing, was given an average rating of 42 habitat units per acre. Marsh habitat was made up of small acreages and exhibited considerable variation in vegetative composition; five such areas were evaluated and given an average rating of 56 habitat units per acre. Shrub grasslands exhibited dissimilarity between locations; four sample areas were rated at an average value of 63 habitat units per acre. Two basic crop types exist in the project area, small grains (wheat and barley) and alfalfa. Two samples, one on National Wildlife Refuge lands and one on private land, were used to rate the wheat-barley cropland because of

the contrasting farming practices in use. Wildlife management practices on refuge lands include leaving a portion of the crop unharvested, maintaining minimum stubble heights and delaying disking of stubble until spring. Consequently, these lands are of more value to wildlife. The ratings from these samples were averaged with the rating for alfalfa land, all of which was on private land, to arrive at a cropland rating of 40 habitat units per acre.

Average rated value of the river-type aquatic habitat type was 83. The dredge cut type was also rated at 83 habitat units per acre.

These aquatic and terrestrial evaluations combined with acreage inventories provided the baseline information for our non-monetary assessments of the various Fort Peck hydropower alternatives. The planning area considered when comparing hydropower alternatives extended from Fort Peck Dam to R.M. 1801.2 below Wolf Point, Montana. Bank stabilization proposals reviewed extended downstream as far as Culbertson, Montana. Summarized basic data, including certain assumptions used in the analyses, are available in the Billings Area Office of the U.S. Fish and Wildlife Service.

The alternatives evaluated include: (1) additional units with a reregulation dam at Range 3; (2) additional units with a reregulation dam at Range 4; and (3) four new bank stabilization proposals. In addition a "no action" alternative was evaluated.

No Action

A decision not to proceed with construction of additional hydropower facilities at Fort Peck Dam would, of course, have no direct effect on existing fish and wildlife resources. The existing resource base, as briefly described earlier in this memorandum, will continue to be largely a function of changing land use patterns in the area. Wildlife populations on lands committed to wildlife management purposes would be protected from major habitat alterations. Populations whose critical habitats are on private or public lands not solely committed to wildlife management may in some cases be subjected to further deterioration. For example, under present management practices the woodlands in the project area will probably disappear in the near future. Cottonwoods are being cut and burned to provide more grassland for cattle. Even when woodlots are not cleared, intensive grazing is eliminating the shrubby understory and preventing regeneration of cottonwoods. Without cessation of deliberate cutting and without the benefit of additional recruitment the existing woodlands may not persist over a long number of years. While the woodlands in their present condition are of value to wildlife, some of this value will likely be lost in the future and the habitat type will become modified even further.

Wildlife habitats of all types occurring on the islands will also be subject to some alterations in the foreseeable future. Evidence of active erosion on islands is readily apparent. It appears that many of the small islands, which now serve as important goose nesting areas, will eventually be destroyed unless somehow stabilized.

With the exception of the islands and woodlands, we believe long term habitat trends are virtually impossible to predict with confidence. Therefore, for the purpose of this analysis we assumed the existing conditions would prevail.

Major changes in downstream fish populations and habitats would not be anticipated, unless significant alterations are made in reservoir operations.

Additional Units, Reregulation Dam at Range 3 (R.M. 1766.23)

Construction of a reregulation dam below Fort Peck Dam having sufficient storage to provide "perfect regulation" of peaking flows and adequate minimum flows during shutdown periods would confine major alterations of fish and wildlife habitats to the area between the reregulation structure and Fort Peck Dam.

A dam at Range 3 would change approximately five miles of the Missouri River into a fluctuating reservoir environment. The reservoir would have a surface area of approximately 2,350 acres at full pool and would undergo daily water level fluctuations of up to 9.8 feet. Approximately 557 acres of riparian and flood plain habitat would be inundated or otherwise lost as a result of accelerated erosion, with island habitats accounting for 327 acres of this loss.

Accelerated erosion of shoreline habitats combined with the loss of island habitats will have substantial adverse consequences on Canada geese. These habitats serve as nesting areas for the birds and any reduction in the number or size of the islands will affect their nesting success. The effect of increases in water level fluctuation on the breeding behavior of Canada geese is not fully understood, although it has been observed to be generally undesirable.

The increases in water level fluctuations will adversely affect bank dwelling mammals, particularly muskrats and beaver.

Riparian and floodplain habitat is in ever decreasing supply and the loss of 557 acres of this type habitat will adversely affect all resident game and non-game species occurring in the area.

Inundation of portions of Duck Creek, combined with significant increases in daily stage fluctuations within the proposed reregulation pool, will alter habitat conditions that are now attractive to wintering mallard

populations below Fort Peck Dam. Increases in wintering habitat could occur with the increased availability of open water above and below the reregulation dam and with the periodic availability of exposed bars and flats. Contrarily, the daily increase in water level fluctuations that would occur within the protected area of Duck Creek could offset any improvement in other habitat factors. Whether corresponding increases or decreases in wintering mallard populations would follow is not known because many factors exerting limiting pressures on the existing population are not fully understood. If, however, relocation of the population or portions of the population to open areas within the reregulation pool occurred, artificial feeding would be nearly impossible. Although this population of birds provides significant late season sport hunting opportunities for residents of the area, "shortstopping" of migratory birds in northern climates is considered undesirable. "Shortstopping" is undesirable because of the potential danger for outbreaks of Duck Viral Enteritis and the inevitable demands by the public for supplemental feeding during severe winters.

A reregulation dam constructed at Range 3 would have severe effects on the aquatic resources occurring above the reregulation dam. The reregulation pool would provide an unproductive environment for fishes. The highly fluctuating water levels combined with rapid turnover rates and cool water temperatures would preclude development of a significant fishery.

The effect of increases in water level fluctuations within the dredge cuts would be noticeable. Primary and secondary productivity would be reduced as a result of corresponding decreases in average water temperatures and the projected increase in siltation from accelerated bank erosion. Subsequent decreases of sport fishing opportunities in the dredge cuts would be anticipated.

The dam would provide a physical barrier to the movement of fishes. Movement of walleye and sauger into the tailrace area would be eliminated. At the present time it is not known if spawning areas for any of these fish occur in the area that would be inundated by a reregulation dam.

Access of paddlefish to the Fort Peck dredge cuts would also be eliminated. Although the relationship of the dredge cut habitats to the life history requirements of the paddlefish is not known, it is anticipated that there would at least be a reduction in the sport harvest of the species even if the biological integrity of the existing run were maintained.

Relocation of the proposed Range 3 site slightly upstream to exclude the Nelson Dredge Cuts as active storage areas should be considered to minimize potential effects of project construction on existing paddlefish runs. Any reduction in reregulating capability incurred as a result of dam site relocation would not adversely affect downstream fish and

wildlife resources if an instantaneous minimum streamflow of 3,000 cfs is maintained at all times and if adequate criteria covering downstream stage fluctuations are imposed. Downstream stage fluctuations as measured at the dam should not exceed an instantaneous change of 6 inches with maximum allowable changes being 6 inches within any 6-hour period not to exceed a maximum change of 2 feet every 30 days.

If adjustment in location of Range 3 damsite is impossible consideration should be given when selecting borrow site areas to development of new "dredge cuts" below the dam. The effects of the regulation dam on aquatic and terrestrial habitats are displayed in Table 2.

TABLE 1. HABITAT SUMMARY - ADDITIONAL UNITS, REREGULATION RANGE 3

<u>Habitat Type</u>	<u>Existing Acres</u>	<u>Existing Habitat Units</u>	<u>Net Habitat Units Lost or Gained (Annualized)</u>	<u>Approximate Acreage Required for Mitigation</u>
Shrub Grassland	544	34,490	- 9,751	267
Woodland	235	16,591	- 11,653	397
Savannah	223	9,411	- 5,008	87
Marsh	149	8,374	- 7,759	177
Cropland	430	17,071	- 1,014	17
River	8,200	683,060	- 81,608**	4,897*
Dredge Cut	643	53,562	- 48,225	2,894*
TOTAL	10,424	822,559	-165,018	

*Losses cannot be mitigated

**Includes islands inundated by the river

Losses of river and dredge cut habitat are, in our opinion, irreversible and could not be mitigated. Losses of terrestrial habitats could be mitigated by acquiring or by taking easements on acreages of similar habitats and managing the lands for the benefit of wildlife. Table 1, Column 5, illustrates the acreage required for mitigation, by habitat type, for each habitat occurring within the project area. The estimates of lands needed are based on the relative values of existing habitats in the area. They reflect the need to accomplish mitigation, but not necessarily a direct need for additional land acquisition over what would otherwise be acquired for project purposes. In determining mitigation needs in this analysis, future use of lands to be purchased for other project purposes was assumed to be similar to existing use. However, if lands now under private ownership were to be managed for wildlife, it appears that mitigation of up to 20,030 habitat "units" of project related losses could accrue. Projected real estate "take lines" used in this evaluation for planning purposes were

depicted on maps transmitted with your letter of July 23, 1976. These boundaries are denoted in Attachment 1. Table 2 illustrates, by habitat type, the losses mitigated by establishment of a wildlife management program on these estimated project lands, as well as reflecting remaining unmitigated losses.

Table 2. MITIGATION POTENTIAL - PROJECT LANDS, REREGULATION RANGE 3

Habitat Type Within Takeline	Existing Acres of Private Land Within Takeline	Habitat Units Gained	Approximate Habitat Units & Acreages Still Required for Mitigation	
			Habitat Units	Acres
Shrub Grassland	31	1,135	- 8,616	235
Woodland	30	882	-10,771	366
Savannah	7	405	- 4,603	80
Marsh	0	0	- 7,759	177
Cropland	292	17,608	+16,594	+275*
TOTAL	360	20,030		

*This figure reflects a gain in acreage of cropland habitat

With this alternative, changing land use of cropland acreage to benefit wildlife would still leave an unmitigated in kind habitat loss. These losses with the exception of marsh habitat could also be mitigated by the purchase and management for wildlife by the Montana Department of Fish and Game of additional bottomlands on the south side of the river in Section 34, 35 and 36, T27N, R41E and Section 32 and 33 of T27N, R42E. Lands suitable for wildlife mitigation are also located on the north side of the river in Section 25 of T27N, R41E and Sections 31 and 32 of T27N, R42E.

Additional Units, Reregulation Dam at Range 4 (R.M. 1763.8)

Construction of a reregulation dam at Range 4 would have many of the same effects on fish and wildlife resources as the proposed structure located at Range 3. If sufficient storage is provided to maintain "perfect" regulation and if adequate minimum flows are maintained during shutdown periods, habitat alterations would be limited to the area between the reregulation structure and Fort Peck Dam. The reservoir formed by this dam would inundate approximately seven miles of the Missouri River and 574 acres of riparian and flood plain habitat, including 327 acres of island habitat. The reservoir would cover 2,096 surface acres and would undergo daily fluctuations of up to 13 feet.

One of the major differences between the two dam sites would be the elimination of the use of the dredge cuts located west of Highway 249

for active storage under the Range 4 proposal. The planning information provided excludes the dredge cuts and assumes that a low level structure would be constructed at the site of the Highway 249 bridge. This structure would greatly reduce the magnitude of the daily water level fluctuations occurring within the dredge cuts and would provide a much stabler aquatic environment.

Earlier letters concluded that with proper management, a viable sport fishery could be maintained in this area. Additional discussions with management biologists of the Montana Department of Fish and Game concerning potential management problems, primarily rough fish control, have indicated that preliminary predictions of a viable sport fishery being maintained in the dredge cuts were premature. Although stabilized water levels would certainly be an asset to sport fisheries management, maintenance of a quality sport fishery is not now anticipated. The Range 4 proposal would also inundate slightly larger acreages of terrestrial habitat.

Losses of Canada goose nesting habitat on islands within the reregulation reservoir would be very similar to losses occurring with the Range 3 proposal. Nesting habitat along the dredge cut shoreline, however, would not be altered.

Daily stage fluctuations would not occur in the Duck Creek area with this alternative. As a result, little change in habitat conditions for wintering mallard ducks would be anticipated unless the birds relocated to open areas within the reregulation pool or to areas immediately below the reregulation dam. Relocation of this population to these areas would severely compound winter feeding problems.

As in the Range 3 proposal, a reregulation dam constructed at Range 4 would provide a physical barrier to movement of fishes. Paddlefish access to the dredge cuts would be eliminated. Movement of sauger and walleye into the Fort Peck tailrace area would also be terminated. A similar tailrace fishery for these species might develop below the reregulation dam, as outlined for the Range 3 proposal. Highly fluctuating water levels combined with a rapid turnover rate of water within the regulation pool would result in a relatively sterile aquatic environment in the reservoir. A significant sport fishery is not anticipated in that area.

Alteration of aquatic and terrestrial habitats occurring with the Range 4 alternative are displayed in Table 3.

Table 3. HABITAT SUMMARY - ADDITIONAL UNITS, REREGULATION RANGE 4

<u>Habitat Type</u>	<u>Existing Acres</u>	<u>Existing Habitat Units</u>	<u>Net Habitat Units Lost or Gained (Annualized)</u>	<u>Approximate Acreage Required for Mitigation</u>
Shrub Grassland	711	45,077	- 11,207	307
Woodland	466	32,900	- 19,069	649
Savannah	453	19,117	- 5,243	91
Marsh	186	10,453	- 6,490	148
Cropland	561	22,272	- 3,107	52
River	8,298	691,223	-109,817**	6,589*
Dredge Cut	643	53,562	- 16,075	965*
TOTAL	11,318	874,604	-171,008	

*Losses cannot be mitigated

**Includes islands inundated by the river

Losses of river and dredge cut habitats caused by the project cannot be mitigated in our opinion. As with the Range 3 proposal, however, terrestrial losses could be mitigated by increasing the carrying capacity for wildlife on similar habitats.

Table 4 denotes habitat losses which could be mitigated in this way on project acquired private lands. Guide takelines used in these assumptions were depicted on maps transmitted with your letter of July 23, 1976. The boundaries used for planning are denoted in Attachment 2.

TABLE 4. MITIGATION POTENTIAL - PROJECT LANDS, REREGULATION RANGE 4

<u>Habitat Type Within Takeline</u>	<u>Existing Acres of Private Land Within Takeline</u>	<u>Habitat Units Gained</u>	<u>Approximate Habitat Units & Acreages Still Required for Mitigation</u>	
			<u>Habitat Units</u>	<u>Acres</u>
Shrub Grassland	179	6,551	- 4,656	127
Woodland	216	6,350	-12,719	433
Savannah	242	13,988	+ 8,745	+151*
Marsh	5	219	- 6,271	143
Cropland	518	31,235	+28,128	+466
TOTAL	1,160	58,343		

*These figures represent a net gain in habitat

Table 4, Column 5, shows that gains in habitat units for savannah and cropland habitat types would occur with the management program. Unmitigated losses of shrub grassland, woodland, and marsh would still remain. With the exception of marsh habitat types, much of the unmitigated loss of the remaining habitat types could be compensated for by conversion of the cropland acres within the "take line" to other vegetative types which would be of greater value to wildlife. Remaining unmitigated losses could be compensated for by purchase and management by the Montana Department of Fish and Game of lands on the south side of the river in Section 32, T27N, R42E and/or Section 31, T27N, R42E on the north side of the river.

Bank Stabilization

Four active erosion sites with tentative proposals for solutions were identified in your letter of July 23, 1976. We understand from information included in this letter that additional erosion sites will likely be identified in the future.

Field inspection of the four erosion sites identified for future bank stabilization work was completed on September 1, 1976. At the conclusion of our inspection of the sites, we were unable to ascertain what criteria were used to identify erosion problems and were puzzled as to how the sites that were identified were chosen. Numerous other locations along the river appeared to have erosion problems at least as severe as those designated for protection.

In a dynamic river such as the Missouri (large flows, highly erodible banks) it becomes difficult to identify and separate the effects of reservoir-related stream degradation and natural meander-type erosion. Influences such as streambed rock deposits, presence of sandbars, and incoming tributary streams complicate analysis and prediction of the erosion process. In general, however, the effects of a dam on stream channel erosion decrease dramatically in the downstream direction.

It is our opinion that all four of the identified sites are far enough downstream from Fort Peck Dam to assume that the major cause of erosion is the natural stream cut and deposition (meander) process. While we have no objections to streambank stabilization in the identified areas, we wonder if the effort may be a futile one. Areas of present active erosion could stabilize naturally in time; in fact, some evidence of this phenomenon was noted at two of the sites inspected. As previously stated, other reaches of streambank were observed which seemed to be eroding as actively as the four specific sites inspected. Also, new areas of erosion will undoubtedly develop along the river in the future. By protecting these initial few sites, the Corps may be opening the door for a deluge of bank protection requests from private landowners along the river.

Our specific comments for the four sites are as follows:

Site No. 1, Approximate 1960 river mile 1758.--We have no objection to the site designation or the anticipated plan of protection. It would be interesting to see if the rock windrow revetment would be effective.

Site No. 2, Approximate 1960 river mile 1746.2.--We have some reservations about designating approximately 3,000 feet of bank line for protection. The lower 1,500 to 2,000 feet of this site appear to be self-stabilizing. The bank slope near the water has flattened and vegetation has restarted. Perhaps only the most upstream 1,000 to 1,500 feet of bank line at this site really needs protection. We are also concerned about the effects of a sandfilled revetment dike at the site. The potential creation of stagnant water areas and the need for disturbance of the stream channel during construction are undesirable features of this proposal. Regardless of the type of bank protection ultimately chosen, we would request that it be limited to the area where active erosion is occurring.

Site No. 3, River bend near Poplar, Montana.--Two separate segments of riverbank will be protected at this site; one on the east side of the bend and the other on the west side. The eastern segment is obviously actively eroding, but the western segment appears to be stabilized. We do not object to bank stabilization along either segment, however, because of the method of protection (windrow revetment) which will be used.

Site 4, Approximate 1960 river mile 1620.0, near Culterton Bridge.--We have no objection to the protection proposed for this site.

Unresolved Issues

In our planning aid letter of April 10, 1975, we discussed the subject of borrow sites that would be required for the 200,000 cubic yards of embankment material needed for construction of the reregulation dam at either Range 3 or 4. We have not yet received any information delineating the borrow sites under consideration for this purpose. The need for this information was reiterated in our letters of April 15 and April 20, 1976. As a consequence, however, this letter still does not contain our assessment of habitat disturbances resulting from borrow removal.

Our April 10, 1975, letter also addressed the subject of the need for additional power transmission facilities. We understand the Bureau of Reclamation is the marketing agency for any additional power that may be generated at Fort Peck Dam. Also we understand that an additional 230 kv transmission line would be required if the proposed hydropower facilities were built at Fort Peck. The line would go either to Bismarck,

North Dakota, or to Garrison Dam, North Dakota, although specific routes have not been designated. Consequently, we reiterate our earlier comments concerning what we consider to be a major study omission. We still do not understand how the feasibility or advisability of the Fort Peck hydropower alternatives, or any other alternative, can be determined with confidence until alternative transmission routes are selected and studied as part of the overall analysis.

Conclusions and Recommendations

- (1) The U.S. Fish and Wildlife Service remains opposed to any hydro-power addition at Fort Peck without reregulation because of the significant adverse alterations of fish and wildlife habitats, particularly aquatic habitats, that would occur.
- (2) Of the power proposals advanced, the Range 3 alternative would be the least damaging to existing fish and wildlife habitats. Our reanalysis of the Range 4 site showed that alterations of existing aquatic habitats would only be slightly less than those occurring with the Range 3 proposal while losses to terrestrial habitats would be significantly greater. If, however, assumptions for land acquisition used in this analysis are correct, and if management of these acquired lands is dedicated to wildlife purposes, mitigation of most terrestrial wildlife losses for Range 4 could be accomplished on project lands. Therefore, the U.S. Fish and Wildlife Service would not oppose the Range 4 alternative provided the project lands are acquired and managed for wildlife with operation and maintenance funds provided as a cost to the project. If the land acquisition and management provisions are not provided for, the Range 3 alternative would be preferred.
- (3) Any reregulation dam constructed should be designed and operated to provide a minimum instantaneous downstream flow of at least 3,000 cfs with changes in stage fluctuation as measured at the dam being as gradual as possible but not exceeding an instantaneous change of 6 inches with maximum allowable changes being 6 inches within any 6 hour period not to exceed a maximum change of 2 feet every 30 days.
- (4) Selection of borrow areas for the 200,000 cubic yards of embankment should be made to provide for minimum disturbance of surface vegetation, especially riparian vegetation. We request the opportunity to provide you with our assessment of the various borrow site alternatives when these areas are eventually selected.
- (5) Utilization of any tailrace fishery which may develop below the reregulation structure will be dependent upon provision of public access and the construction of adequate visitor facilities. Road access, parking area, health facilities and a boat launching facility should

be provided. These facilities should be designed in cooperation with the Montana Fish and Game Commission and the U.S. Fish and Wildlife Service.

(6) We do not object to any of the bank protection measures proposed for the four sites identified. We request that all work being done be confined to areas of active erosion only.

(7) It is recommended that the location of the dam for the Range 3 site be relocated to just upstream of the Nelson Dredge Cut. Consideration should also be given to creating new slack water areas (dredge cuts) when removing borrow for any dam constructed. These areas, if connected to the river and located below the reregulatory structure would be of value to paddlefish populations residing in the river.

(8) We request that recommended Fish and Wildlife Resource measures be included as a part of any request for authorization to construct additional hydropower facilities at Fort Peck Dam. Acquisition of lands needed for wildlife mitigation, as previously outlined, should be accomplished at the same time lands are acquired for other project features. This will help assure that wildlife resources receive equal consideration with other project features.

We trust that all of our recommendations will be included in your feasibility report. If you have questions or feel that revision or clarification of our recommendations is required, we would be pleased to meet with you prior to issuance of your report.

We appreciate the opportunity to review the proposed power and reregulatory project and hope that this update of our earlier studies will be helpful in preparing your interim report.

Sincerely,



Burton W. Rouns
Area Manager

Attachments (3)

cc: Regional Office, FWS, Denver, CO (ENV)
Montana Dept. of Fish and Game, Helena, MT
John Boudreaux, c/o Regional Office, Denver, CO (EN)

